SOAP

SANITARY CHEMICALS

INFANT MORTALITY DROPS!

Fuld disinfectants, sold by jobbers everywhere, are on guard night and day in hospitals all over the country to assure such robust specimens as this!

Not only hospitals, but also schools, have come to rely on ALL Fuld sanitary chemicals, as well as disinfectants, because of their uniform high quality.

Years of experience, expert supervision and the last word in scientific research and production methods make them universally used, and the demand for them grows daily wherever people congregate and health is endangered.

Our products (see list below) lead in the campaign for Defense Through Health.

DEODORANT BLOCKS
LIQUID DEODORANTS
POWDERED WAXES
FLOOR TREATMENTS

DEODORANT BLOCK HOLDERS
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SPECIAL CLEANERS
SOAP DISPENSERS

LIQUID CLEANERS
PASTE WAXES
FLOOR SEALS
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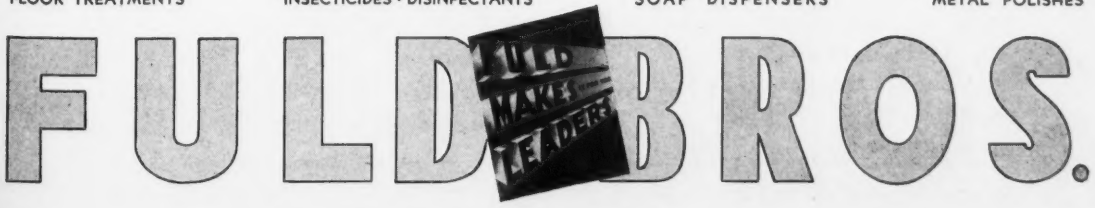

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DOW

DIPHENYL METHANE

As a basis for reproduction of the Geranium note where quality is all-important, Dow offers a synthetic aromatic of unsurpassed excellence — Dow Diphenyl Methane.

This superior product opens new fields in the re-creation of this characteristic fragrance.

Dow Diphenyl Methane is representative of Dow's group of synthetic aromatic chemicals, all products of Dow's rich background of knowledge and experience in advanced chemical research. It will prove invaluable where quality receives the final emphasis in the reproduction of the Geranium odor.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

NEW YORK • ST. LOUIS • CHICAGO • SAN FRANCISCO • LOS ANGELES • SEATTLE • HOUSTON

Volume XVII Number 11

SOAP and SANITARY CHEMICALS

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MEMBER AUDIT BUREAU OF CIRCULATIONS

Contents

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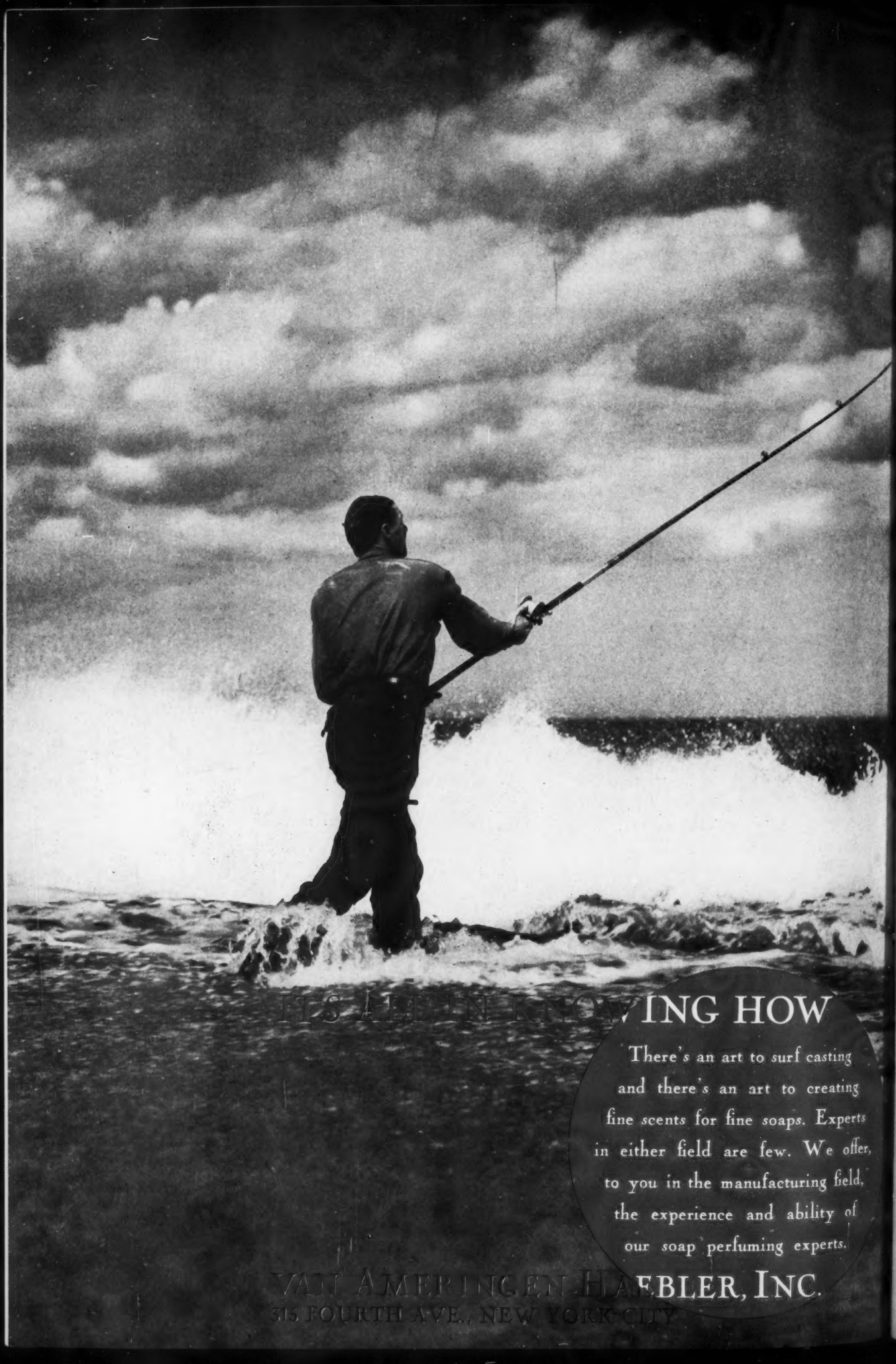
ING HOW
There's an art to surf casting and there's an art to creating fine scents for fine soaps. Experts in either field are few. We offer, to you in the manufacturing field, the experience and ability of our soap perfuming experts.
BLER, INC.
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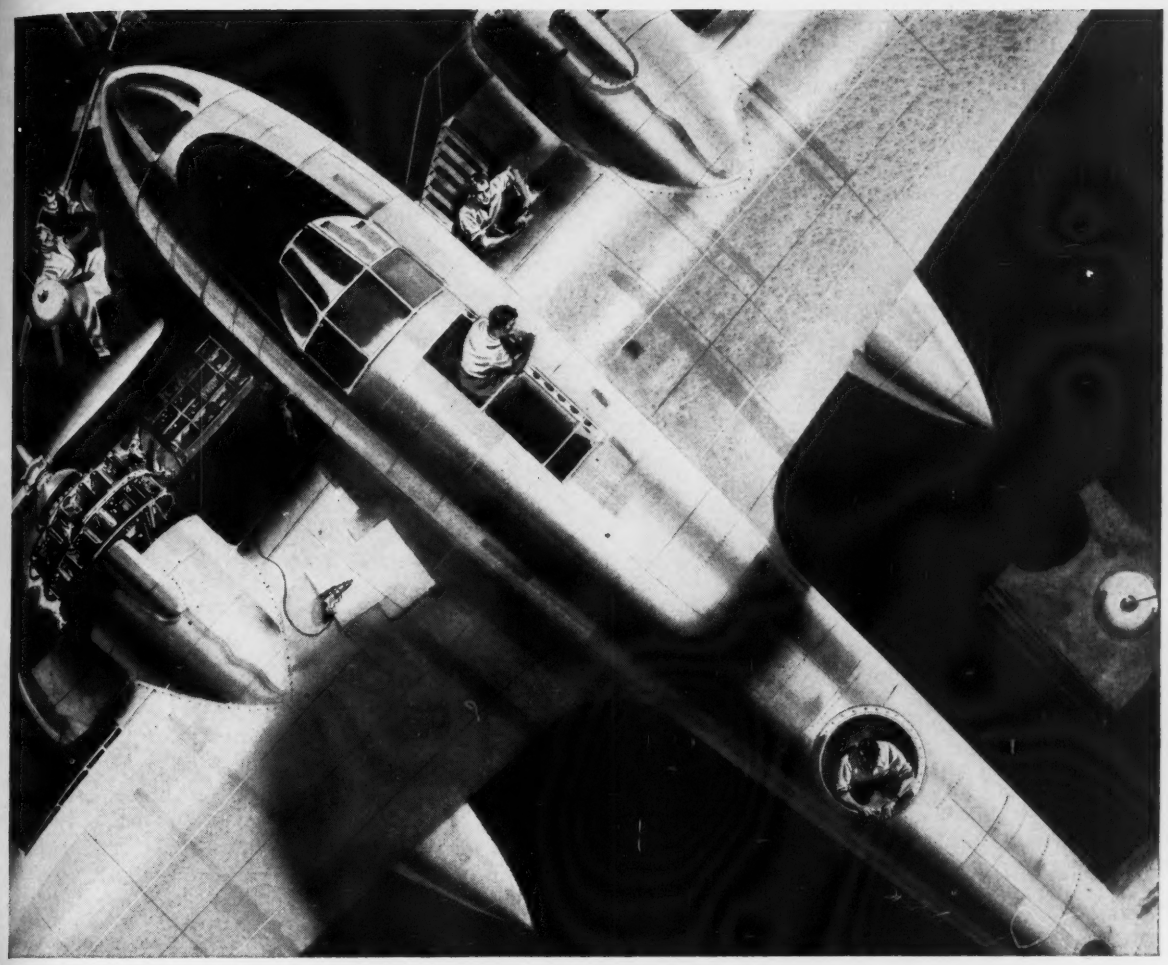

The tin can enlists for the duration

How Changes in America's Most Widely Used Containers Are Aiding National Defense.

YES, the tin can has "joined up." In fact, some of these containers will soon be appearing in new "uniforms."

The reason is this: Tin is one of America's most vital defense materials. To conserve this country's essential reserve supply of tin, the research scientists of the can makers' industry have developed and perfected changes in tin containers that will effect tremendous savings in this vital defense metal.

Take the coffee can, for instance

The vacuum-packed coffee can will soon look slightly different. Its top and bottom are now being made of an enameled steel rather than the tin-plated steel formerly used. This change enables us to make a considerable saving of the tin normally used for coffee cans without sacrificing their ability to guard the freshness and flavor of your coffee.

Food cans, paint cans, oil cans

Practically every other tin container also has undergone changes, each according to its use and contents. An 80 per cent lead coating, instead of the usual lead and tin coating, is being used on cans for such things as paint, oil, gasoline.

On food cans, the tin coating has been reduced 10 per cent. Today's better, higher-grade steels make this possible. (*Note:* The tin coating on food cans prevents rust on the outside and enables the side seam of the can to be soldered at high speed. It has never had anything to do with the wholesomeness of the food in the can.)

And through these changes you will be proud to know the can makers of America are conserving millions of pounds of tin a year.

And this tin—which has been saved—is now going straight to industries which are turning out the ships and planes and guns that will defend America! This is just a beginning. As rapidly as our laboratories can perfect new changes, new tons of tin will be diverted to defense.

' ' '

AMERICAN CAN COMPANY
230 Park Avenue, New York, N. Y.

EASY LESSON FOR MANUFACTURERS

Sassafrin is but one of a number of exceptional products which the Felton Laboratories have successfully synthesized to replace many natural products no longer available.

Due to the acute shortage and high price of Sassafras Artificial, it will be well worth while to investigate the merits of Sassafrin.

WRITE FOR A SAMPLE TODAY...

FELTON CHEMICAL CO., INC.

599 Johnson Ave., Brooklyn, N. Y.

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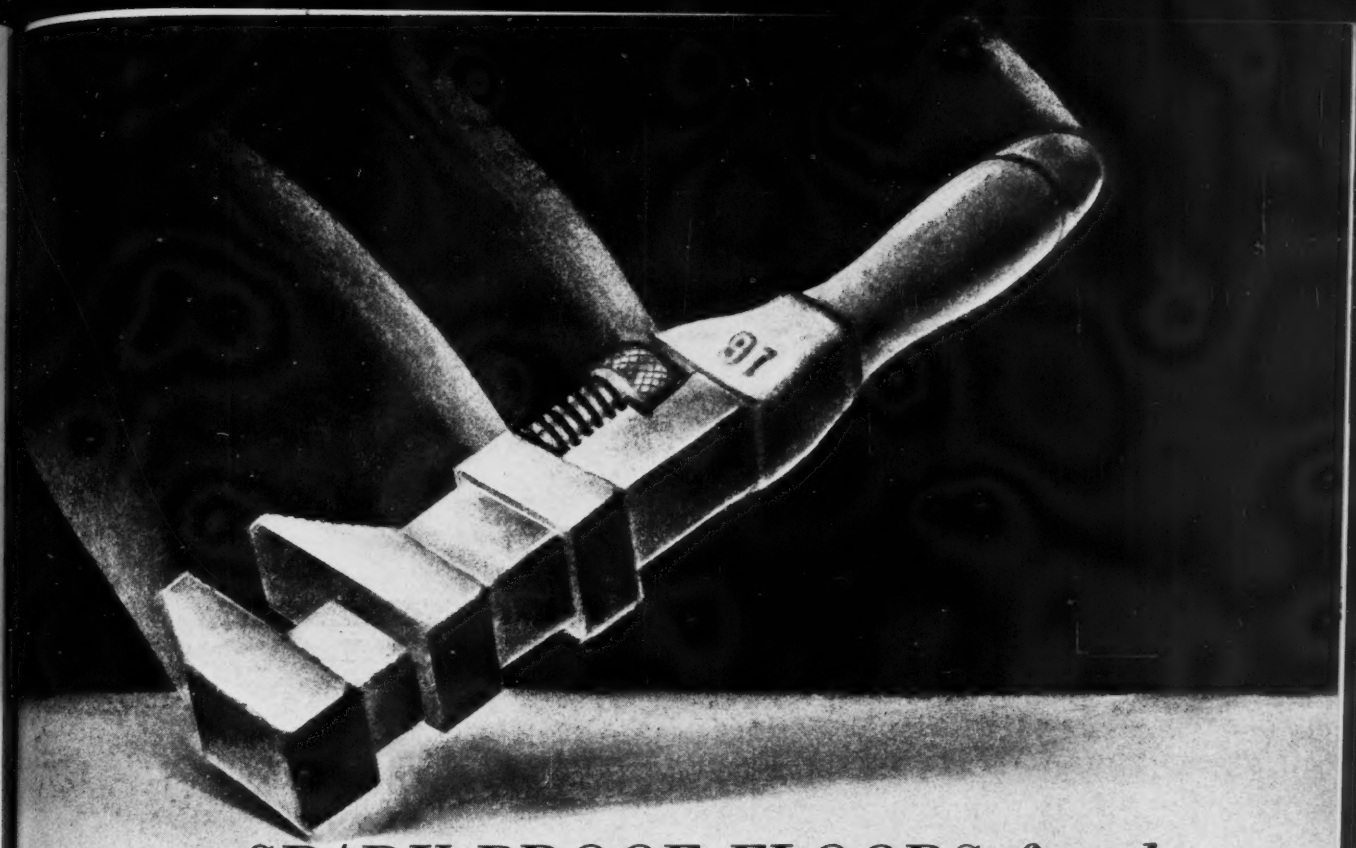
Manufacturers of Aromatic Chemicals, Natural Derivatives, Perfume and Flavor Oils.



SPARK-PROOF FLOORS for the ARSENALS OF DEMOCRACY!

In explosives plants, on ships, wherever else a carelessly dropped tool or nailed-shoe might cause a fatal spark, floors of lightweight, skid-proof, spark-proof Oxychloride Cement are being laid. Unique among surfacing materials, these magnesite composition floors also drain off the build-up of static electricity.

This material is one of the many interesting "Chemicals from Seawater" produced by our associated subsidiary California Chemical Company, division of Westvaco Chlorine Products Corporation.

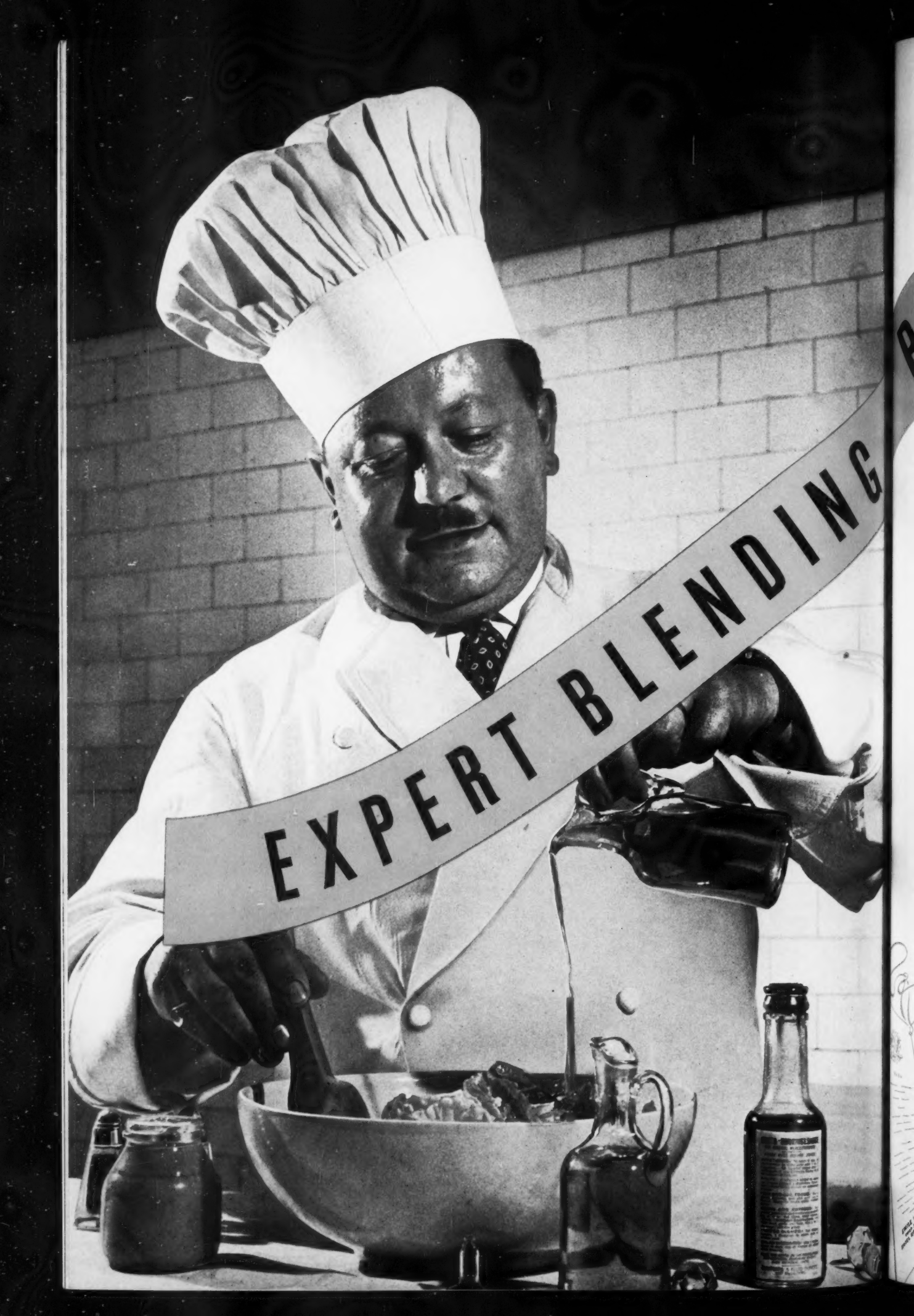
While our plants are busy turning out alkalis, chlorinated solvents, phosphates, magnesium oxides and other products both for defense and industrial needs, our development program is also working full speed ahead. We are at this time particularly desirous of rendering technical service to present and prospective customers.

WARNER CHEMICAL COMPANY

Division of

WESTVACO CHLORINE PRODUCTS CORPORATION

Chrysler Building, New York City

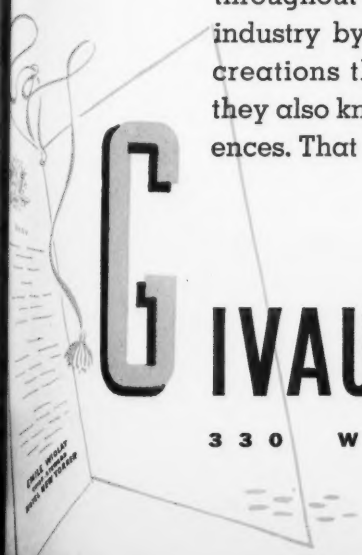

EXPERT BLENDING

BRINGS IN THE CUSTOMERS

The difference between a masterfully blended sauce and a "satisfactorily" blended one is incredibly small. But what a *big* difference that *little* difference makes to the *right* customers – the clientele whose patronage is valued as the backbone of a restaurant's business. The same conscientious blending of ingredients to meet the tastes of customers is the secret of success in the creation of odors for perfume and cosmetic products, too. Like the master chef, the blender of perfumes must know his clientele as well as his ingredients.

Givaudan chemists know their ingredients. That has been established throughout the perfume and cosmetic industry by the hundreds of masterful creations they have introduced. And they also know public tastes and preferences. That has been established by the many *successful* odor blends they have developed for manufacturers of every type of perfume and cosmetic products. Some of these blends are used in special products, others for complete lines. The subtle "difference" that distinguishes a Givaudan odor or blend of odors from a run-of-the-mill or a simply "satisfactory" one is responsible for an increasing number of successes on the market today.

Your line can profit by the special knowledge and experience Givaudan's staff brings to the science of odor creation. Why not let our chemists work on your problems and suggest answers? You will find their work both efficient and economical. Givaudan will be glad to furnish samples and prices on products and help you make suitable odor selections.



GIVAUDAN-DELAWANNA, INC.

330 WEST 42ND STREET, NEW YORK, N. Y.

THIS WE DEFEND

The soap industry has its part in contributing to the strength and health and morale of America. Ours is a defense of *cleanliness* and *sanitation.* These are essential safeguards for men in camps, and for manpower on the factory production lines. You, the distributor, have been responsible for the high sanitary standards that protect the health of boys and girls in school, of men and women in industry and offices and stores and public places. This is the duty—never more important than now—which we must continue to perform—together.

THE DAVIES-YOUNG SOAP COMPANY • DAYTON, OHIO

A Complete Line of Soap and Sanitary Supplies: Scrubbing Soaps and Cleansers • Liquid Toilet and Surgical Soaps • Liquid Floor Waxes • Disinfectants • Insecticides

DADDY I WANT THIS FOR MY BRAND NEW CAR

TOO YOUNG to want a diamond ring . . . or caviar . . . but she knows that when Daddy puts Tri-Rad Anti-Freeze into the family car . . . it's time to follow his lead!

The Crown Can in which Tri-Rad is packed by Stanco, Inc., of Bayway, N.J., retains its good looks even after it has been emptied . . . and that's convincing proof of the care with which it was constructed and the expertness with which the colors were applied.

Secondary uses are either humorous . . . or unimportant. But the primary purpose of any can is to present your product as attractively as possible . . . while providing the most perfect protection between your plant and the ultimate consumer.

Stanco, Inc., bought Crown Cans on that dual basis, a precedent you might well find profitable . . . and economical.

CROWN CAN COMPANY, PHILADELPHIA, PA., *Division of Crown Cork and Seal Company,* Baltimore • St. Louis • Houston • Madison • Orlando • Fort Wayne • Nebraska City

INDEPENDENT AND HELPFUL CROWN CAN

AS THE EDITOR SEES IT

FROM Washington, we hear that the present system of priorities is fast rolling toward oblivion, and that it will be replaced by a system of allocation of raw materials, especially scarce raw materials. The allocation will be on a basis of materials rationed industry by industry, and it is believed, will make for a much closer control of scarce materials than now exists. Such allocation means first, that all supplies of these materials would come under direct Government control, and second, that a Government order for a specific quantity for a definite purpose would have to be secured in order to obtain a supply.

Although priorities may be supplanted chiefly by rationing, the former will continue to have a place in speeding materials for the defense program, we are told, and priority ratings will still stand. At the same time, where it can be shown that certain amounts of scarce items are essential to keep large numbers of men at work in a non-defense plant, the chances of the manufacturer obtaining this material would be enhanced under an O.P.M. rationing system. The same is true where a manufacturer can show that he is using methods effectively to conserve materials in small supply. But be that as it may, the priority system appears about due for a complete face-lifting job, even though it may not be junked.

More and more, these constant changes in Washington remind us of the dizzy days of the N.R.A. For it was then that a "system" was not sooner set up than it was the next day knocked into a cocked hat and replaced by some other plan. Business men did not know what to expect from Washington then any more than they know what to look for today. Only one thing appears to be certain right now outside of death and taxes, and that is that the rules and procedure which are in effect today will be changed tomorrow. Is it any wonder that business is scrambling around like a headless chicken?

There is one point which we still believe has not been as yet strongly enough impressed upon the officials of the O.P.M. and is something which they in their ardent endeavors to speed the defense program, are prone to forget,—defense is vitally important, but non-defense industry is still supplying work and feeding about eighty per cent of this nation's population! These constant changes hurt business and industry, defense or otherwise, hurt the country and interfere with the very defense program which O.P.M. is trying to speed up!

ANY article "held out" for toilet purposes, with the exception of soaps, is subject to the new ten per cent retail tax on cosmetics. In other words, the article need not be anything which is commonly classed as a cosmetic or toilet article. If it simply be recommended for some use which is that of a toilet article, the tax applies, according to the interpretation of the new tax law by the Bureau of Internal Revenue. Toilet soaps, soap shampoos, shaving creams and other soap products are, however, specifically exempt from the new tax.

This interpretation brings to mind the difficulties which were encountered several

years ago by manufacturers of pine oil disinfectant who recommended that a teaspoonful be added to the bath. Under the tax on cosmetics then in effect, and subsequently repealed, it was held by the Bureau of Internal Revenue that in recommending pine disinfectant for use in the bath, the manufacturer declared the product as a cosmetic, and as such, it was subject to the tax. In a big hurry, manufacturers removed this bath recommendation from their labels.

Accordingly, manufacturers of products definitely not in the class of toilet articles should be careful under the new law not to throw their products into this taxable group by some minor label statement. Any suggested use as a cosmetic or toilet article, no matter how inconsequential, may cause trouble.

OVER the past few months, we have noted what seems to be an increase in the number of empty soap dispensers, empty drip machines, empty para block holders, and empty paper towel dispensers in the public washrooms of hotels, restaurants, factories, and office buildings. We gather the impression that there has been a letdown in this type of service,—plus the impression that washrooms are not being kept as clean as they were some time back.

From the angle of the sanitary products industry, empty drip machines, block holders, soap dispensers mean only one thing,—lost business. If the materials are not there to use, the public most certainly cannot use them. Naturally, with the widespread expansion in defense employment over the past year, the difficulties with service men have been multiplied many fold. Likewise, the labor problem of hotels, restaurants, and the like has increased tremendously. This, in itself, may be the main explanation. And the sanitary products supplier, busy with increased demand from a hundred and one new industrial sources and a dozen raw material headaches, has little time to give to the problem. So maybe, it is just a sign of the times, a situation which will correct itself eventually when conditions return somewhere nearer to normal. But it is still worth a check-up now just to find out the real causes.

COMPLAINTS are heard from some small manufacturers of cleaners, disinfectants, insecticides, and soap specialties that they stand in a disadvantageous position in bidding on government defense requirements. They claim that in attempting to obtain the necessary raw materials to bid on defense needs, they find that suppliers of these materials are apparently giving preference to the larger sanitary products firms. Thus, they maintain, there is a concentration of government orders among a comparatively few firms whereas the orders should be spread more evenly throughout the industry among both small and large companies.

That small firms are at a disadvantage all along the line in the present business scramble, is quite evident. Maybe in some instances, the matter of credit is a factor. But mostly, it is a case of insufficient raw materials. Numerous suggestions have been made for spreading out the orders over a wider area in the industry, even through subletting and splitting up of contract awards. But the situation is so wholly complicated, involving priorities, scarcities, delivery times, and other matters, that nothing in this direction has been accomplished thus far.

Such a division of government contracts would undoubtedly be beneficial to industry at large, but whether it would have any advantages to the government in the quick acquisition of supplies, is held to be debatable. At any rate, it is a matter which will come in for much wider discussion, and possibly action, over the next month or so.

SOYBEAN OIL

What its expanding production in the United States means to users in the soap industry,—particularly to the manufacturer of potash soap specialties

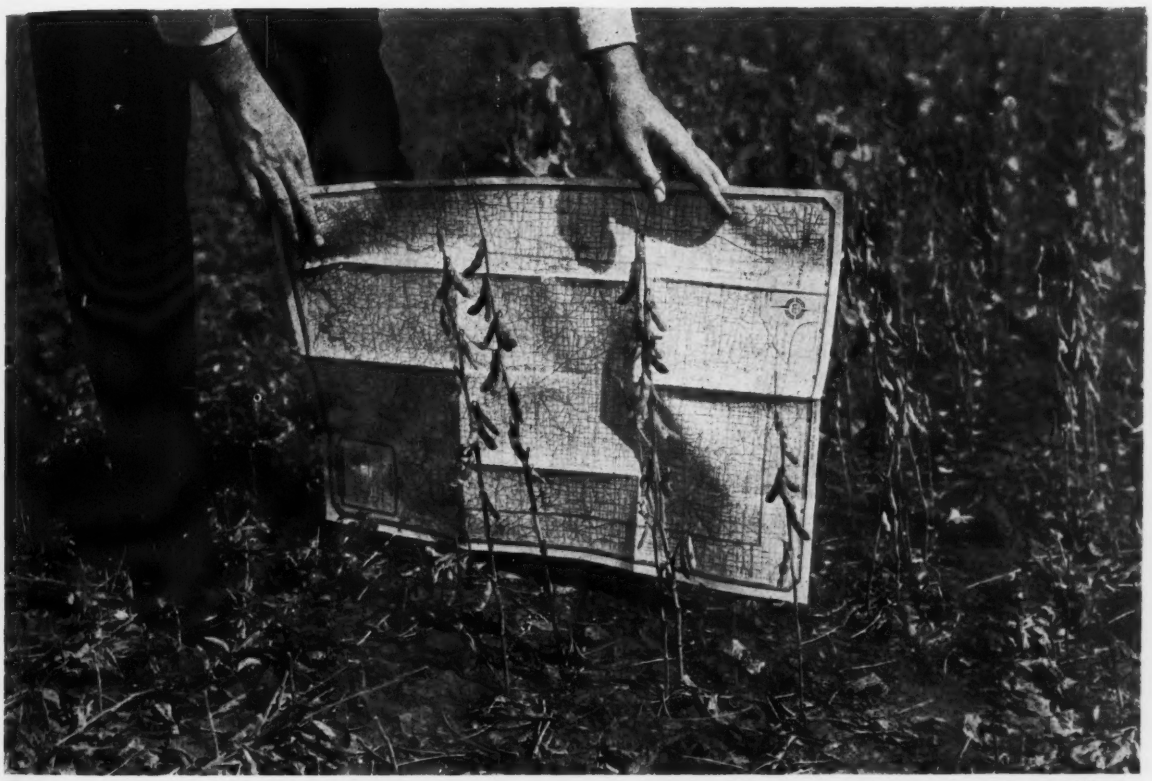


Photo courtesy A. E. Staley Mfg. Co.

THE increasing importance of soybean oil to the soap industry in the short space of the last six years is indicated by consumption figures. Where in 1935 the soap industry used only two and a half million pounds of soybean oil and about five million pounds of foots, in 1940 consumption had risen to almost eighteen million pounds of oil and twenty-one million pounds of foots. Thus in six years, the use of soybean oil by American soapers has increased fourfold. During the same period, the use of competing "soft" oils by the industry has decreased.

Consumption figures for 1941, when made available, undoubtedly will show even larger quantities of bean oil and foots used by soap manufacturers as 1941 production will be considerably larger than that of any previous year. It is estimated that the 1941-42 crop of beans will total nearly 111,000,000 bushels, or 31,000,000 bushels more than the 1940-41 crop. Production of crude soybean oil for the crop year 1940-41 was estimated at 565,000,000 pounds — and next year's output will not be far short of 800,000,000 pounds. Soybean oil is rapidly approaching linseed oil as America's second most important domestic vegetable oil.

Within recent years, the demand for all soybean products has increased widely, and this has been the principal factor behind the rapid growth of oil production. To name a few important uses of soybean products, soybean oil meal is widely used as a protein supplement in the feeding of livestock and poultry, and also in making fertilizers, plastics, glues, human food, and celluloid substitutes. A greater part of the soybean oil produced today is used in edible products, the most important of which are shortening, oleomargarine, cooking oils and other food products. In all, the edible products industries consume about 80 per cent of all soybean oil used in the United States, leaving 20 per cent for such technical pur-

poses as paint, varnish, linoleum, oilcloth, printing ink and soap. The division of soybean oil consumption into 80 per cent for food purposes and only 20 per cent for non-food purposes grows out of an economic condition and in no way reflects on the value of soybean oil for non-food purposes.

The relative prices of soybean oil and competing oils govern its use by the various consuming industries. This is as true for other industries as it is for the soap industry. In soap manufacture, principal competing oils are corn oil and linseed oil. For edible purposes its competitors include cotton oil, corn oil, lard, peanut oil, coconut oil and palm oil. In the paint, ink, varnish and linoleum industries, soybean oil is competitive with linseed oil and other drying oils.

For edible uses, soybean oil must be priced slightly lower than cottonseed oil to be regarded as strictly competitive from the standpoint of price as it requires more expensive processing to make it suitable for use in shortening, oleomargarine, etc. In the case of paint and varnish, linoleum and oilcloth manufacture, it must also be priced somewhat lower than linseed oil to hold its competitive position in the market for drying oils. This is because soybean oil contains more gelatinous or albuminous matter than most other oils used for the same purposes and thus requires more extensive pre-treatment.

As more soybean oil goes into edible products, more soybean foots become available to the soap manufacturer. Where only a few years ago, soybean products were almost unknown among the general public, today practically every housewife in the country is familiar with the versatile soybean in one form or another. Once largely imported from Manchuria, the principal producing region, soybean oil is now to all intents and purposes a truly domestic material, particularly now that the hostility between United States and Japan has cut off all imports from Manchuria.

The bulk of soybean oil or foots used in soaps at the present time goes into soft potash soaps such as oil soaps, floor scrub soaps, auto soaps, and medicinal soaps, where it replaces linseed or corn oil. For soft soaps, soybean oil is a highly satisfactory stock. It is considered superior to linseed oil and as good as corn oil for most purposes. One of the principal objections to linseed oil as a soap oil is that soaps made from it usually possess a disagreeable, fishy odor. The fact that soybean oil does not lend a disagreeable odor to its soaps gives it this advantage over linseed oil.

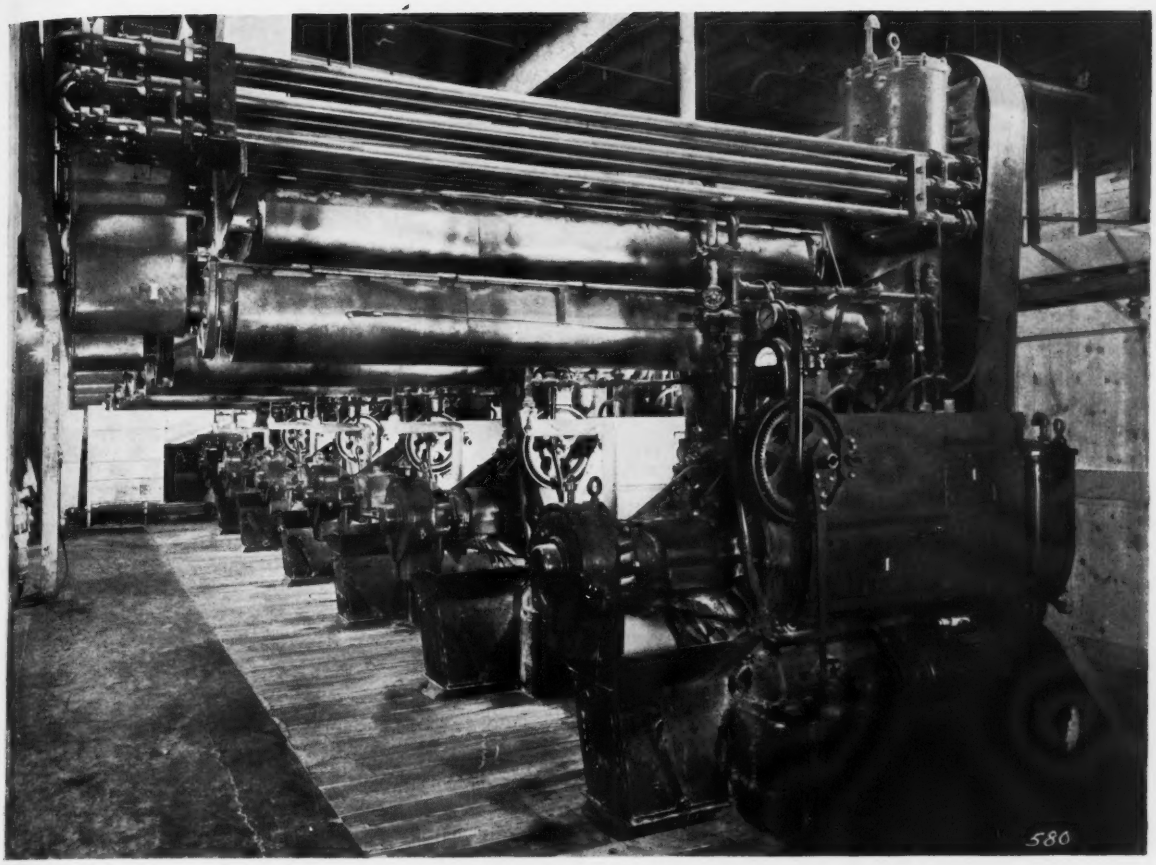
Corn oil, as compared with soybean oil, makes a more satisfactory soft soap for cleaning linoleum, but this is said to be the only type of soap in which it is superior to soybean oil. Corn oil soaps wet more easily and rinse more readily than soaps made from straight soybean oil, but the difference is slight and in other characteristics soybean oil soaps compare very favorably with those made from corn oil.

ACCORDING to one soap maker, soybean oil is the best stock for soft automobile soap. Demand for this type of soap has, of course, dropped off in recent years but some market still exists, although small. In making a soft soap with soybean oil, the oil may be saponified straight with potash lye, or first blended with corn oil and then saponified with potash lye. The soybean oil-corn oil blend is said to be an excellent combination.

Another type of soft soap, suitable for use in dispensers or as liquid soap concentrates to be diluted before they are used, is made from a combination of coconut oil with a small proportion of soybean oil saponified with potash lye containing a few per cent of caustic soda. The soda is added to give body to the soap. For this particular purpose, soybean oil is said to be the most satisfactory stock that can be used. Soybean oil can also be used in making a soap which corresponds quite closely to U. S. P. Soft Soap, (*Sapo Mollis*). Although some authorities have held that soybean oil could be used to make official U. S. P. soap preparations by the cold process, U. S. P. XI specifications call for linseed oil. When made from soybean oil, this type of soft soap is free from objectionable odor.

Like all soaps made from oils having a high iodine value, those made from untreated soybean oil do not keep particularly well and tend to go rancid. If they are not used within a reasonable time, they develop objectionable rancidity and discoloration although this phenomenon is not as pronounced in the case of soybean oil soaps as it is with linseed soaps. In making soft soybean soaps, it has been recommended that saponification be carried out cold where possible as the use of heat tends to darken the soap. When properly made, soybean potash soap is transparent and of a dark yellow or light brown color.

Although untreated soybean oil can be used straight in making soft soaps by the semi-boiled or cold processes, it is obviously not practical to use it alone in manufacturing hard soda soap. It can, however, be used in combination with coconut oil, tallow, or hydrogenated oils or other hard fats to impart softness, or to increase solubility, or to replace part of the coconut oil. Soybean oil, in contrast to the ease with which it is saponified with caustic potash, is not readily saponified with the usual concentrations of caustic soda. In order to saponify the unblended oil, it is necessary to begin with an extremely low concentration of lye. The lye which is used initially, according to A. A. Horvath, should not be stronger than 8.5° Be. except in the case where steam agitated soap kettles are employed. Then 10° lye can be used. But this is only about 6.5 per cent NaOH,—an inconveniently low concentration to use. If more concentrated lyes are used at the beginning of saponification, the reaction is extremely slow in starting.



Battery of Anderson Expellers in a soybean crushing plant. Photo courtesy V. D. Anderson Co., Cleveland.

These problems can be eliminated if the soybean oil is mixed with other oils. Using coconut oil, for instance, in a proportion of at least one-third, the lye strength can be increased to 25° Be. By blending with other stocks according to the requirements of the soaper, it is possible to produce laundry soaps of good quality using natural soybean oil to the extent of 20 to 30 per cent in the charge. This is done, of course, only when the relative price of the oil makes it economical. Judging from the present set-up of the market for oils and fats, larger quantities of soybean oil will probably be used by soapers in the near future.

WITH the advances in fat chemistry of recent years, especially in hydrogenation, natural soybean oil can be converted into almost any type of fat desired for food uses or in the soap kettle. It is all a matter of market price and economics. Where the price warrants, soybean oil may be hydrogenated to an iodine value of 60 to 69 to produce a good substitute for beef tallow in the manufacture of hard soaps. Whereas soda soaps containing any appreciable quantity of natural soybean oil have numerous drawbacks, such as a tendency to discoloration and rancidity, and are suitable only for laundry and industrial purposes, soap stock produced from hydrogenated soybean oil does not have these disadvantages and is suitable as a base for toilet soaps.

The same is true, of course, in the case of all unsaturated oils, linseed, whale, fish, and others, when it comes to soap manufacture. The hydrogenated oils produce soaps which are better and which give a closer and more durable lather. But if they are hydrogenated to too high a titre, the soaps are very hard, brittle, and lather poorly. Such fats must be blended with other oils or greases to give a proper degree of hardness and free lathering.

The fly in the ointment is that it is generally uneconomical to hydrogenate soybean oil. Due to the cost of hydrogenation, the price of crude soybean oil has to be lower than that of the various inedible animal fats in order to make it worth while to hydrogenate. Thus, as long as prices remain in their present relative positions, it is apparent that hydrogenated soybean oil will not become a tonnage factor in the manufacture of hard soaps, and that where there is an increased use of bean oil in the soap kettle, it will be mainly in the manufacture of soft potash soaps from the natural oil. In the case of any sharp reduction in the available

(Turn to Page 70)

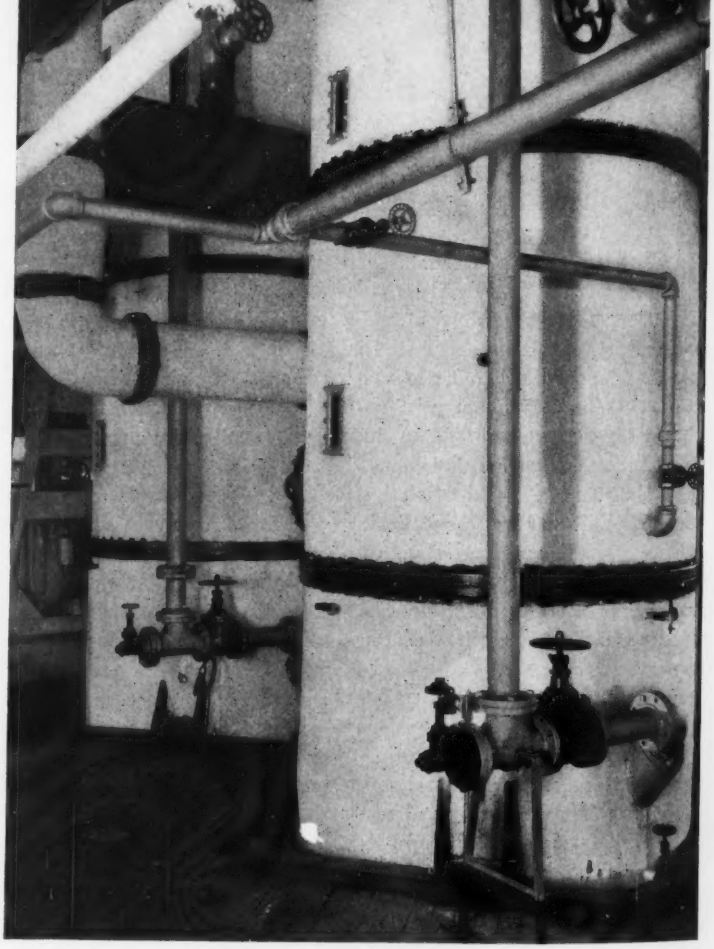
GLYCERINE...

Some observations on its recovery and refining in modern soap plant practice ...first of a series of three articles

By J. W. McCutcheon

GLYCERINE was discovered by Scheele in 1779. His initial process was the saponification of fat by means of lead oxide. It remained as a laboratory curiosity until about 1860 when it was discovered that the nitro derivative was explosive, opening an important field for industrial consumption. Today it is the soap manufacturers' chief by-product. Its present industrial importance depends chiefly on its hydroscopic properties, in addition to its added attributes of edibility and sweetening power.

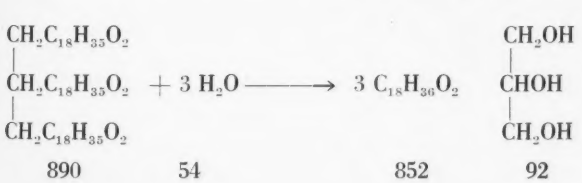
A few important uses are in the manufacture of tobacco, cellulose acetate, leather, paper, printing inks, varnishes, beverages, confectionery, cosmetics, pharmaceutical preparations, etc. Its use as an antifreeze is today quite limited. As a chemical reactant, there are many possibilities which at the present time have reached only the experimental stage. Such types of reaction include polymerizations, condensations, and esterifications, and it is possible that future development of glycerine uses will lie in this field. One of the most recent developments is its use in the manufacture of di and mono glycerides for use as emulsifiers[1], while one of the oldest, is the manufacture of nitro derivatives for explosives. But even in the peace-time development of industrial dynamites, there has been a gradual lowering of the nitroglycerine content and an increased use



of nitro-glycols for the purpose of improving stability at low temperatures. As a military explosive, large quantities of nitroglycerine are being used in double base propellants and as an agent for controlling the ballistics of straight nitrocellulose powders. The single base or nitrocellulose powders are providing keen competition, however, because of their more direct style of manufacture and less corrosive effect on the gun barrels, although it is doubtful that they will entirely displace nitroglycerine.

In addition to the natural source of supply from oils and fats, there are also several synthetic processes. The fermentation of weak sugar solutions in which sodium sulfite is used as a neutralizing agent was brought to a state of economic success in Austria during the last war. This is commonly known as the Connstein and Ludeck process. The many additional patents taken out since seem to be adaptations and modifications of this basic process, aimed at either increasing the glycerine yield[2] or utilizing hydrolyzed starch solutions, such as from waste rice, etc.[3] The other important process is through chemical synthesis by selective chlorination and hydrolysis of cracked petroleum gases.[4] For other less known processes, the reader is referred to a review by Rex. Furness.[5]

Fats and oils are triglycerides and their hydrolysis or saponification leads to the formation of fatty acids or the fatty acid salts and glycerine. For example tristearin hydrolyzes as follows:



890 54 852 92

This calculates to yield 95.73 per cent fatty acid and 10.33 per cent glycerine. However, fats and oils are mixtures of various fatty acids so that in practice the above yields are only approximated. Particularly is this true of the nut oils whose fatty acids average very low molecular weights which result in a low fatty acid and high glycerine content. There is another factor also which has a bearing on the final glycerine content and that is the content of free fatty acid. The slow hydrolysis of fat in storage results in a gradual rise of free acids. The resulting glycerine in certain cases may be drained from the bottom of the storage tanks or as is more often the case, may be destroyed by the same ferments which caused the original hydrolysis. The results in either case are the same—the fatty acid content is proportionately raised and the glycerine content lowered. Roughly 10 per cent free fatty acid in the above example would raise the total fatty acid content to $0.9 \times 95.73 + 0.1 \times 100 = 96.16$ per cent, and lower the glycerine content about 10 per cent to 9.30 per cent. Since hydrolysis is selective and the lower fatty acids hydrolyze first, the results by the above method of calculation are only approximate. The table above is presented as a guide from which reasonably accurate figures may be interpolated:

	Tallow—Palm		*Peanut—Soya Bean*		*Coconut*		*Palm Kernel*	
	F.F.A.	*Glyc.*	*F.F.A.*	*Glyc.*	*F.F.A.*	*Glyc.*	*F.F.A.*	*Glyc.*
0	95.60	10.65	95.65	10.44	94.21	14.00	94.45	13.50
5% ..	95.75	10.18	95.80	9.96	94.50	13.30	94.70	12.85
10% ..	95.87	9.68	95.94	9.45	94.79	12.65	94.95	12.18

Hydrolysis of the fats by various means, such as the Twitchell reagent, lime soda saponification, autoclaving, etc. results in a glycerine sweet water relatively easy to concentrate up to 90 per cent to 92 per cent glycerol content and known as saponification crude. From normal soap boiling operations, which are the major source of crude glycerine, there remains about 12 per cent to 16 per cent salt in the lyes which is a complicating factor both in the evaporation to salt crude and in the subsequent refining operations. An outline of soap boiling practice is not possible here except to point out general principles.

The first step of saponification may or may not be done with strong lye and may be anywhere from 90 per cent to 98 per cent complete, depending not so much on the stocks employed as on the particular system of boiling being used. The majority of the glycerine is dropped here, probably 70 per cent to 80 per cent. Subsequent washes, either weak or on strength, further reduce the glycerine and bring the saponification up to at least 98 per cent. A strong change completes saponification after which a number of short boils are given to bring the glycerine, salt and alkali to the desired levels prescribed for the type of soap being cleansed. The glycerine content of the lye drops lower and lower as the washes proceed, being probably less than one-half per cent in the final wash.

The degree to which the glycerine is removed, depends very largely on the size and number of the washes, although certain factors of equipment and technique also play a large part. For example, it is important to have the soap well closed on the boil. Here the use of brine as a graining medium is superior to salt since frequently solid salt on the bottom of the kettle will have a tendency to keep the soap in a slightly open condition and prevent the full washing effect desired. Also, kettles should be equipped with closed coils as well as open ones, to aid in reducing the lye volume.

Generally speaking, the amount of glycerine left in the soap ranges from 0.2 per cent to 1.2 per cent and represents approximately 2 per cent to 11 per cent of the total glycerine available. Washing normally gives approximately 1.20 lbs. of lye to every pound of 63 per cent

soap, or approximately two pounds of lye per pound of fat consumed. This should give a normal figure for glycerine left in soap of 0.5 per cent to 0.7 per cent, representing a loss of 7 per cent to 10 per cent. Increasing the washes to say 1.4 pounds of lye per pound of 63 per cent soap made under normal operation conditions, would probably reduce the glycerine left in soap to 0.2 per cent to 0.4 per cent, representing a total glycerol loss of only 3 per cent to 6 per cent. The effect of such changes will result in weakening the glycerine content of the lye from say 6 per cent to 5 per cent with a resulting increase in evaporation costs. Since small differences exist in soap boiling technique and types of raw materials used, plus wide differences in evaporation costs due to style of equipment, steam costs, etc., it is not possible to more than indicate in a general way that an economic balance does exist between the per cent recoverable glycerine left in the soap and the net price of crude.

To point out one factor which has an enormous bearing on evaporation costs, certain factories, by their size and types of product, are able to counter-flow their lyes from their high grade to low grade soaps in such a way that the third wash on kettle "A" becomes the second wash on kettle "B." This procedure, if followed through thoroughly, greatly reduces the wash water used and increases the glycerine content enormously—up to 15 per cent to 17 per cent under conditions which leave approximately 0.5 per cent-0.7 per cent glycerol in the soap, or down to 11 per cent-12 per cent where the glycerine left in soap is only 0.2 per cent to 0.4 per cent.

Between these extremes, of course, many intermediate stages are possible and it should be the duty of the soap boiler to overhaul his procedure periodically with the above factors in mind. Of course, quality of soap must also be considered, and in certain special cases it may be advisable to purposely increase the glycerine content a few tenths per cent in high grade toilet soaps to reduce cracking and blisters. Such conditions are rare, however. It has been said that glycerine has a certain preservative action, but such properties, if any, must be attributed to its hydroscopic character rather than to any chemical reaction.

THE hot lyes, dropped at 160° to 180° F. contain considerable amounts of soaps, since the working strength of the salt is limited to about 13 per cent to 17 per cent depending on the types of stock being handled, being higher for the nut oils. Cooling precipitates the majority of these which float to the surface and are periodically removed and returned to the kettle. The lack of proper settling and cooling facilities in many small plants is probably the largest single factor in producing crudes of poor quality, since no system of treatment can be designed economically to handle such conditions.

Precipitation of these soaps under optimum conditions of cooling is not, however, complete, the solubility of the soaps in brine solutions increasing as the molecular weight of the fatty acid decreases. Nut oils such as CNO and PKO are bad actors in this respect. In this connection, phase studies made by R. H. Ferguson and A. S. Richardson,[6] are very interesting. Certain very low molecular weight acids such as caprylic, caproic and butyric are not salted out at all, but must be removed later in the chemical treat process. The oxidation of the fatty acids also gives rise to soluble by-products, usually colored. These need not consist entirely of the degradation products, such as aldehydes and ketones, but may also be peroxide and hydroxyl acids or what is commonly considered as first stage oxidation products. Often clear, well-bleached and odorless tallows will give a dark soap on saponification and throw down highly colored lyes, indicating the presence of such products.

In addition, soap lyes often contain the alkali degradation products of rosin. In large scale production where much rosin is used, it is customary to saponify the rosin separately and to run the initial lyes to the sewer. In a lesser degree this is practiced throughout the trade, but occasions exist where it is not economical to make such separation, particularly where rosin is added only to one type of product and that in small amounts. Then also, where large amounts of rosin are used, often the several washes following the tallow and rosin union pass to the recovery system and carry down certain amounts of impurities.

Frequently also, lyes stored for considerable periods of time will ferment, giving rise to various by-products which often pass to the finished refined glycerine, a notable example being trimethyleneglycol. It is good practice to clean lye storage tanks frequently and rinse them with a weak cresol solution to prevent such conditions arising.

Soap lyes, then, contain organic impurities, such as albumen, etc., suspended matter, as dirt, soluble fatty acids, oxidized acids and their by-products, and possibly rosin acids. Normal treatment will remove these impurities to such an extent that no difficulty will be experienced in obtaining a high quality crude. However, for extremely high grade refined glycerine, used in certain pharmaceutical preparations, the presence of traces of these impurities persist even under the most rigorous types of treatment. In such cases, it is sometimes expedient to segregate the lyes for such special glycerine, avoiding any traces of rosin and using only lyes from tallow, if possible, or from nut oils in as limited a quantity as is practical. The author has found lyes from the usual toilet base mixtures, 80 tallow: 20 coconut oil, to be very satisfactory for such purposes. Palm oil is to be avoided because of its high oxidized fatty acid content.

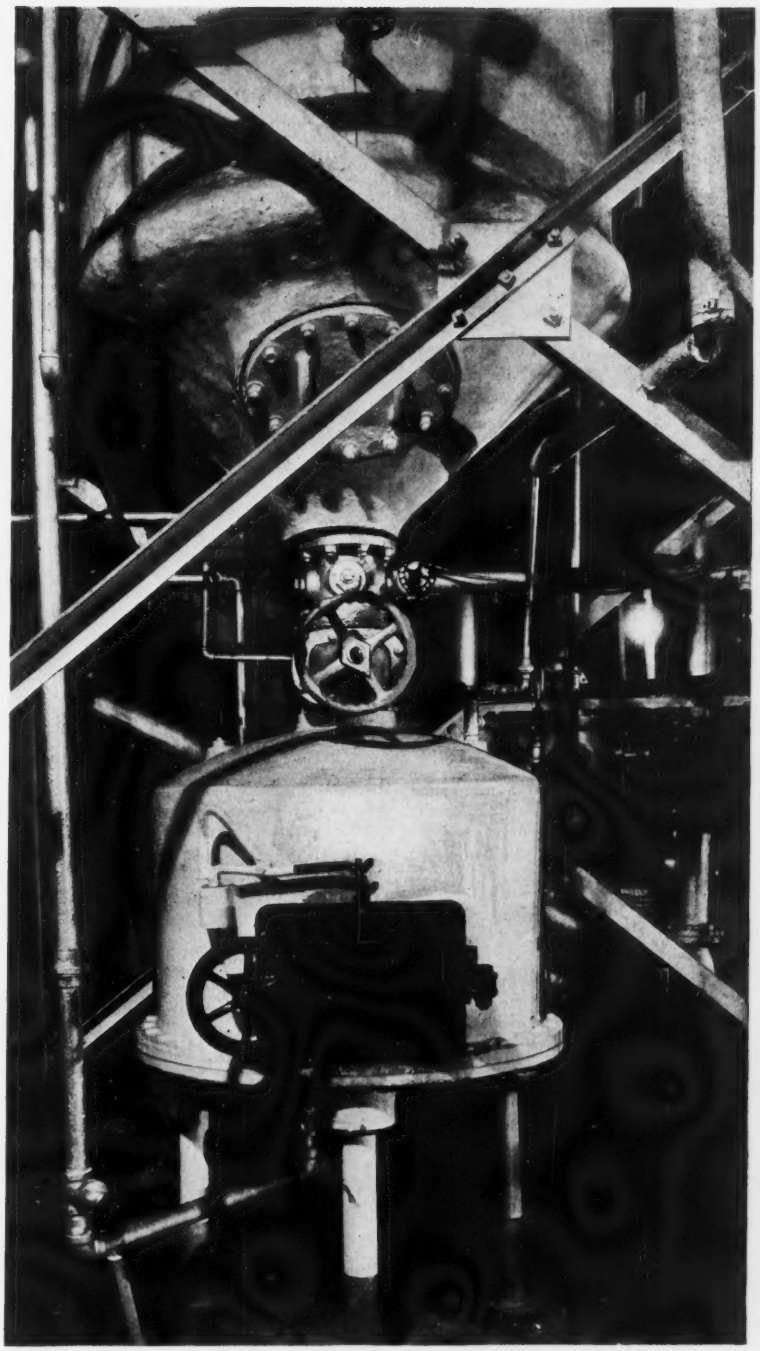
Purification of Soap Lyes

THE cooled and skimmed lye as it comes from the kettle house may contain about 0.1 to 0.2 per cent total alkali, 13 per cent to 17 per cent salt, 5 per cent to 17 per cent glycerine, various amounts of organic dirt, soluble fatty acid and

oxidized fatty acid soaps. A chemical treat process designed to purify the lye may be known as a single treat or double treat, depending on whether only one or two filtrations are necessary. Since the single treat system is very effective and requires less control, it is the one usually used by the small plant.

The lye is heated to a temperature of 160° to 180° F., agitation is started, usually by means of air, and a soluble iron salt added, such as ferric chloride, ferrous sulfate, etc. This precipitates the insoluble iron soaps. If a ferrous salt is used, the excess is oxidized in the presence of air to ferric hydroxide, which acts as a gel and helps clarify the lye. After a reasonable reaction time, the lye is filtered and the alkalinity adjusted for proper evaporation. If too alkaline or insufficiently alkaline, it will cause foaming in the evaporator. A pH of about 8 to 9 is satisfactory,—just sufficiently alkaline to turn phenolphthalein a decided pink.

Sometimes it is economical to use an acidified bog ore as the source of iron salt, but this is fast becoming obsolete because of the cheap iron salts now on the market. The use of aluminum sulfate (improperly called "alum" in the trade) is objectionable in a single treat system, since with it the one thing for which a one treat system is noted, simplicity, is lost. The amphoteric character of the alum entails close pH control to avoid aluminum salts passing into the filtered lye. As far as costs are concerned, it must be borne in mind that the so called alum contains considerable water due to its water of crystallization, so that 100 pounds is only as effective as 72½ pounds of ferric chloride.



The double lye treat, consists in acidifying the lye, adding the iron salt as before, plus aluminum salt. The bulk of the salts are then precipitated and filtered off at a pH of about 5 to 6, after which the treat is carefully neutralized and refiltered. This last brings down the balance of the iron salts and all the aluminum. The lye is then made alkaline for evaporation. If the pH of the first treat is much below 4, considerable iron salts of the fatty acids will remain in solution, causing too bulky a second precipitate and thereby defeating the purpose of the double treat. If, on the other hand, the pH is too high, say at 5.5-6.0, the sliminess of the precipitate will slow up or entirely prevent filtration.

In general, it is advisable to operate on a low pH at first and then gradually work up to as high a one as is practical with good filtration results. This will be dependent on the filtering facilities, types of lye, how well they have been skimmed,

etc. The author has seen effective operation at as low a pH as 3.7, although 5.0-5.5 is much to be preferred. Control of this operation is not as difficult as might appear and is best handled by the operators on the job using a LaMotte block comparator. It is desirable, but not at all essential to have a calomel electrode for check testing particularly in the early stages of training. This apparatus is not very expensive and is readily handled by laboratory help.

The exact quantities of chemicals to be used cannot be determined by test except in a very crude manner and even then they may prove very misleading in anything but expert hands. It is suggested that after preliminary tests, ample allowance be made for the precipitating chemicals so as to cover normal variations between treats, reserving the responsibility for changes to the technical staff. As a guide, the following percentage of chemicals is given for normal lye running about 0.1 per cent to 0.2 per cent total alkali:

Muriatic Acid @ 30% HCl	0.400% to 0.800%	
Aluminum Sulfate @ 100% $Al_2(SO_4)_3$	0.105%	double treat
Ferric Chloride @ 100% $FeCl_3$	0.040%	double treat
Ferric Chloride @ 100% $FeCl_3$	0.140%	single treat
Alkali @ 74% NaOH	0.040%	

Other chemicals used as precipitants, such as ferrous sulfate, etc. may be determined from the above through the usual stoichiometrical relationship.

The advantages of the double treat over single:

1. Bulk of the ppt. taken in first filtration leaving the second as an effective cleanup operation.
2. $Al(OH)^2$ drags down many impurities.
3. Al gets many light weight soaps not possible with Fe alone.

Practical tests show that the second treat should be held between a pH of 7.0 to 7.7, otherwise the Al salts will begin to dissolve as the aluminate. However, the minimum precipitation of iron appears to take place at as low a pH as 7.0 to 7.1 with the added advantage that the salts settle much more rapidly in that range. Hence the optimum conditions for both filtering and completeness of precipitation probably lie between a pH of 7.1-7.4 and operators should hold their treats within these limits.

TYPICAL plant equipment and operation of a two treat system sufficient to handle about 200,000 pounds of lye per 24-hour day follows: three treat tanks; 100,000 pounds water weight each, plus two 50,000 pounds treated—lye storage tanks; two filter presses, capacity about 30,000 pounds per hour maximum (possibly two 30" corner feed presses), and the necessary accessory equipment, such as air lines for agitation, transfer pumps, caustic make up tank, acid buckets, and laboratory facilities for control tests, etc. The extra treat tank and press allow simultaneous handling of both treats. The tanks may be ⅜" plate of any convenient shape with either rivet or welded joints. If internal bracing is used, it will probably have to be replaced every two or three years, as corrosion is quite rapid. The scale formation on the inside of the tanks should not be disturbed in cleaning as it acts as a protection against further corrosion. A ⅜" iron plate, rectangular riveted tank has been known to give satisfaction for 20 years, with only occasional repair to the internal bracing.

Ordinary corner feed plate and frame presses are satisfactory although corrosion necessitates a periodic milling to keep them in good repair. If this is neglected, the resulting leaks soon cause serious corrosion difficulties and may ruin the plates entirely. Rubberizing the plates and frames does lengthen the service, particularly if the rubber extends completely around the frames so that there is a minimum area of metal to rubber band exposed, since the wear comes in the loosening of the rubber from the metal. It is doubtful, however, if such practice is economical on a present cost basis.

Lye transfers may be made by reciprocating or electrically driven rotary pumps. The nature of the precipitant causes little wear on the rotors of the latter, but care must be exercised to watch that lyes low in pH (2.5 to 3.0,) do not pass. Agitation is best accomplished by compressed air and heating by open or closed coils.

Approximately 90,000 pounds of cooled and skimmed spent lye is run to No. 1 treat tank. While this is proceeding and with the air and steam on, add 200 pounds of alum (aluminum sulfate) and 25 pounds of ferric chloride in solution. When the complete charge is in, heat to 135-155° F. and add sufficient acid to bring the pH within the prescribed limits, as previously given—3.7 to 5.5, depending on the type of lye, filtering facilities, etc. Filter into tank No. 2. This operation usually takes 4-6 hours. With agitation full on, but no steam, add caustic slowly until the pH reaches 7.1-7.5 as shown by the comparator. The temperature should be down to 125°-140° F. at this point. Filter into No. 3 and bring the pH to 8.0 or higher for evaporation, testing with phenolphthaline indicator. Transfer to treated lye storage or evaporator feed tanks. In adjusting the pH, care should be taken to add the alkali or acid slowly enough so that it is uniformly mixed, before sampling. A drift of 0.1-0.3 in passing the filter will be normal and care should be exercised to make due allowance for this.

The bulk of the precipitate comes down in the first filtration so that cleaning of this press becomes imperative after each treat. On occasions, it may be found advantageous to use both presses to increase the capacity. Number 1 treat tank should be cleaned at regular intervals and it is sometimes more economical to permit a certain fraction of the precipitate to so settle through rather than to attempt to pass everything

(*Turn to Page* 69)

TETRASODIUM PYROPHOSPHATE

Some comments on the effects of pyrophosphate with alkalies in water softening applications

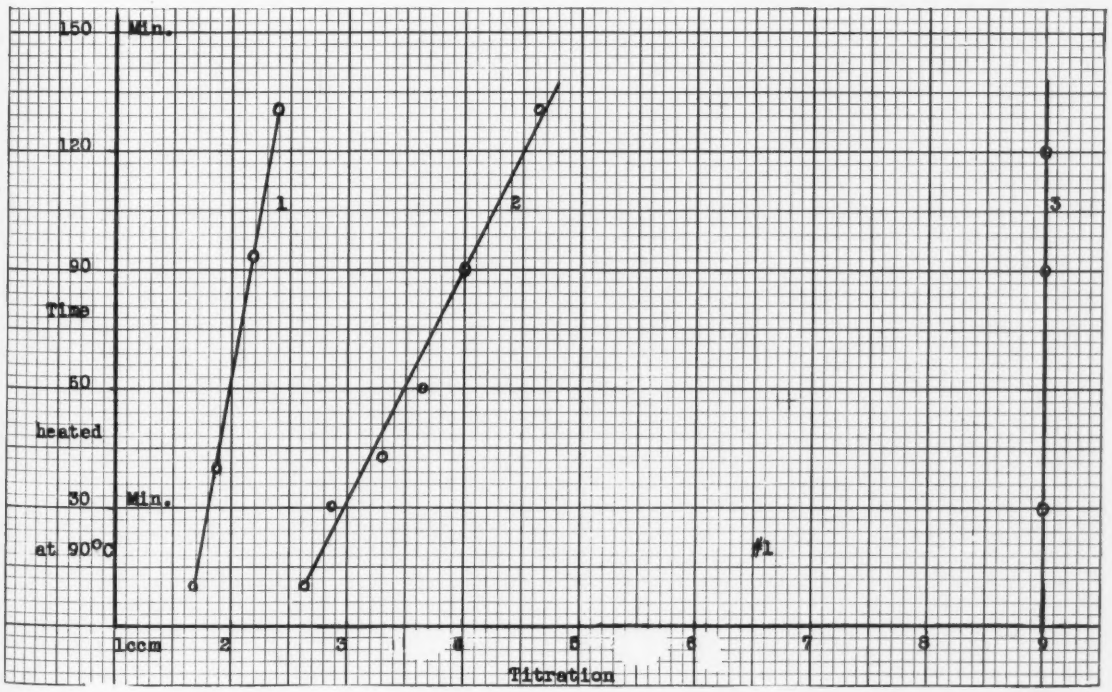
By Andreas Treffler

IN neutral solutions, the water softening efficiency of sodium metaphosphate is about seven times as great as tetrasodium pyrophosphate (T.S.P.P.). In alkaline solutions, it is only about four times as great due to the fact that sodium metaphosphate, having an acid reaction, decomposes to a certain extent by neutralization in such solutions. At higher temperatures, sodium metaphosphate decomposes slowly in neutral solutions and more rapidly in alkaline solutions in addition to such decomposition by neutralization. Heat and any large amount of impurities speed its complete decomposition within a few hours.

Tetrasodium phosphate not only remains unchanged during prolonged boiling, its water softening strength and its detergent value are improved in the presence of other alkalies to such a degree, that is advisable to use in certain cases only T.S.P.P./alkali mixtures. The rates at which metaphosphate decomposes at the temperature of 90° C., with and without soda ash, are illustrated in drawing No. 1. The vertical line at the right side represents a 1 per cent T.S.P.P. and a 1 per cent—50/50 T.S.P.P./soda ash solution, unchanged by prolonged heating at 90° C. On the left, somewhat inclined, is the decomposition line of a 1 per cent metaphosphate solution. In the center is the decomposition line of a 1 per cent metaphosphate solution containing in addition 1 per cent soda ash.

Alkalies used without T.S.P.P. have very little water softening and emulsifying strength, as the peptizing

Sodium metaphosphate decomposition test by heating a 1% Sodium metaphosphate solution (#1), a 2% solution containing 1% Sodium metaphosphate plus 1% Soda ash (#2), a 1% T.S.P.P. and a 1% 50/50 T.S.P.P./Soda Ash solution (#3) at 90°C. and titrating with it 58.3 ccm tap water (1.6 U. S. grain hardness) containing .2 ccm Standard Soap solution (lather factor) to a permanent lather lasting five minutes at room temperature.



Result of titrations, obtained by titrating 58.3 ccm tap water (1.6 U. S. grain hardness) containing .2 ccm Standard Soap solution (lather factor) with 5% solutions of T.S.P.P. and other alkalies, alone and mixed in different proportions to a permanent lather lasting 5 minutes at the temperature of 20°C.

T.S.P.P. 100%	50/50	1/3/2/3	20/80	10/90	5/95	Alkali 100%	Detergents	
	1.8ccm	1.9	3.0	5.0	8.2	13.5ccm	Orthosilicate	$2Na_2O.SiO_2 . 6H_2O$
	2.1	2.6	3.8	5.4	10.0	16.0	Metasilicate	$2Na_2O.SiO_2 . 5H_2O$
	1.7	1.8	2.7	4.9	9.7	no	Caustic Soda	NaOH
1.8ccm	1.8	1.9	2.8	4.6	7.6	perm.	Soda Ash	Na_2CO_3
	1.9	2.4	3.4	4.9	8.8	lather	Sesquicarbonate	$Na_2CO_3$48.17 $NaHCO_3$35.85 H_2O 15.58
	1.8	2.1	3.1	5.0	9.0		Sodium Bicarbonate	$NaHCO_3$
	1.8	1.9	2.8	4.8	9.7		Laundry Soda	$Na_2CO_3$46.17 $NaHCO_3$41.51 H_2O 11.84
	2.0	2.5	4.0	6.3	8.3	10.5	Trisodium Phosphate	Na_3PO_4 $12H_2O$
	2.0	2.8	4.1	6.9	9.0	no perm. lather	Borax	$Na_2B_4O_7 . 10H_2O$

action so characteristic of T.S.P.P. is missing. The addition of a small amount of T.S.P.P. improves their action considerably. In order to find out how much the addition of smaller and larger amounts of T.S.P.P. improves the efficiency of alkalies, extensive tests were made using a somewhat modified method for determining the hardness of water. Standard quantities of 58.3 ccm of tap water (1.6 U. S. grain hardness) were titrated with 5 per cent alkali and T.S.P.P. solutions, mixed in different proportions, to a permanent lather lasting five minutes at a temperature of 20° C.

The results are shown in accompanying table and drawing No. 2. Results of the titration with a 5 per cent T.S.P.P. solution are reported as a 100 per cent detergent and with 5 per cent—50/50 T.S.P.P. alkali mixtures, reported as 50/50 detergents. The figures of the 50/50 mixtures indicate that mixtures in this proportion are as powerful as the same amount of T.S.P.P. alone. On the right are the results of titrating with 5 per cent alkali solutions, reported as 100 per cent detergents. Without the use of T.S.P.P. no permanent lather was obtained in titrating with 5 per cent caustic soda, soda ash, sesquicarbonate, sodium bicarbonate, laundry soda and borax solutions. In titrating with 5 per cent orthosilicate, metasilicate and trisodiumphosphate solutions only a weak permanent lather was obtained. The addition of even a small amount of T.S.P.P., as in the 5/95 T.S.P.P./alkali mixtures, readily produced a permanent lather in all cases.

By using a 50/50 mixture instead of straight T.S.P.P., costs are reduced considerably as T.S.P.P. is considerably more expensive than any of the common alkalies. In the 50/50 mixtures the alkalies are a complete substitute for the T.S.P.P. they replace. The theoretical explanation for this phenomenon is as follows. When a T.S.P.P. solution is added to hard water, a precipitate of Ca, Mg, or Fe pyrophosphate forms; by adding an excess of T.S.P.P. or other alkalies, this precipitate is peptized, turning soluble again. This reaction can be demonstrated very effectively by adding a dilute T.S.P.P. solution to a dilute ferric chloride solution until a precipitate forms. By dividing this precipitate into two parts and adding an excess of T.S.P.P. solution to one part and an excess of caustic soda solution to the other part, the precipitate in both solutions disappears.

In using a powdered anhydrous T.S.P.P. one technical disadvantage, namely its difficult solubility in water is encountered. It forms cakes and lumps, dissolving only very slowly. Caking in this case must be regarded as a crystal growth. stimulated by the cooling action of the water. The outer layer of the cake is a crystalline complex, each molecule of T.S.P.P. having taken up 10 molecules of water of hydration, while the inner layer remains in powder form. Loose crystals dissolve readily in water but complex crystals not so easily. Anhydrous T.S.P.P. in flake form cannot cake up and will dissolve more quickly than powder. Powdered anhydrous T.S.P.P. in 50/50 mixtures with alkalies does not tend so readily to form lumps, as the different crystal forms prevent a uniform crystal growth. Some caking, however, takes place. In 1-3/2-3 mixtures hardly any caking is noticeable.

It it were possible to add water to anhydrous T.S.P.P. powder in a very dispersed form, so that only small crystals and no agglomerates could form, a readily water soluble T.S.P.P. should be obtained. This led to the idea of using soda ash or some other material which binds and absorbs water in dispersed form, as a medium or as a water disperser.

If 15 parts of water are added with constant stirring to 42 parts of soda ash, no caking takes place. The water is absorbed in an exothermic reaction and crystalline soda ash is formed on cooling. By adding 42 parts anhydrous T.S.P.P. before this cooling takes place another rise in temperature is noticeable, as the

T.S.P.P. takes the water from the soda ash in a very dispersed form and crystallizes in fine, loose crystals on cooling. This product can be manufactured in a powder mixer, in which the rotating equipment clears any crusts from the walls. The addition of 1-2 per cent anhydrous soap, in powder or liquid form, as allowance for the lather factor, turns this product into a universal cleaner, excellent not only for washing glassware and dishes, but for laundries and silk boil off baths also. A similar product, with about the same pH of 10.6, the same strength and ready solubility in water, but without the addition of water, consists of

42 parts soda ash
42 parts T.S.P.P.
15 parts sodium bicarbonate
1 part anh. soap powder

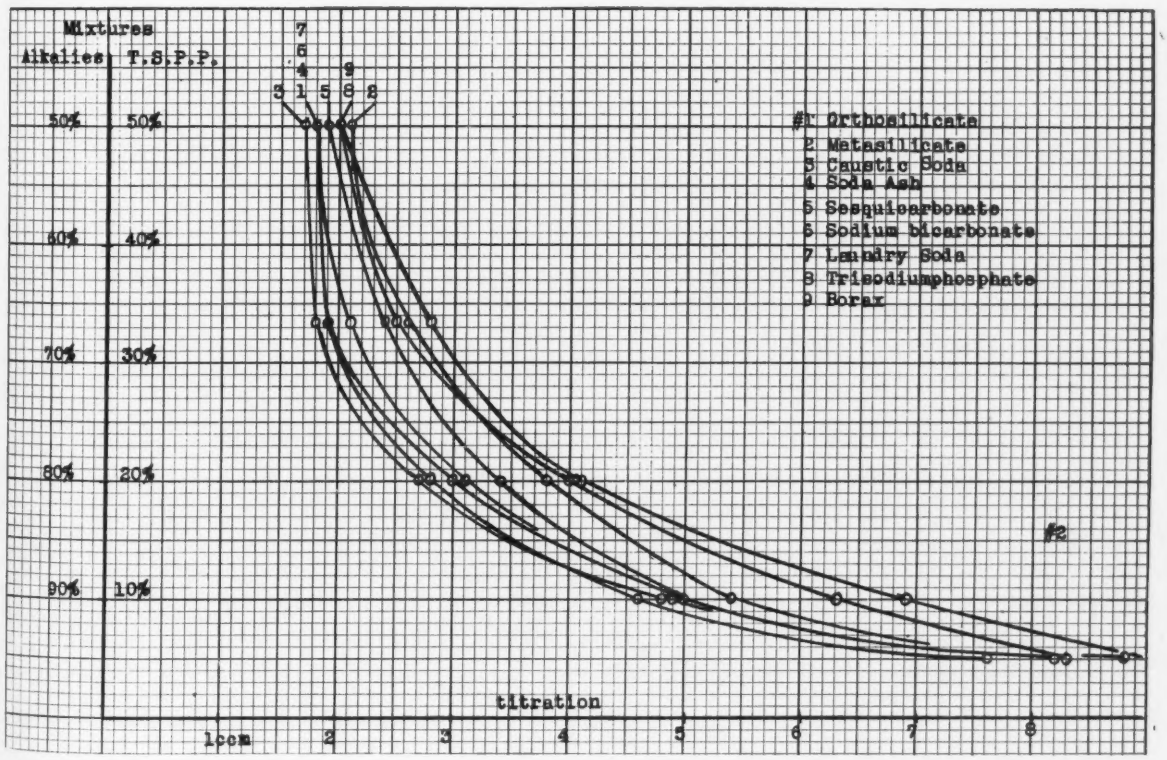
At a temperature of 160° F., titration with the 5 per cent T.S.P.P./alkali solutions is somewhat different. Heat generally increases the solubility of chemical compounds and it also increases the peptizing effect of T.S.P.P. and metaphosphate too, as is shown in following test, called the cloud test:

Upon adding a 1 per cent anhydrous coconut oil soap to 100 cc tap water, a certain cloudiness may appear due to the formation of insoluble Ca, Mg or Fe soaps. This cloudiness is not removed by adding T.S.P.P. alone; heating is necessary. At about 130° F. the solution clears up, indicating 100 per cent peptization. The same test can be repeated with metaphosphate, for which the critical peptizing temperature is found to be lower—about 90° F.

In the test where tap water is titrated with various solutions to a permanent lather, at room temperature, 1.8 cc of a 5 per cent T.S.P.P. solution produced a lather lasting five minutes, while at a temperature of 160° F., only 1.4 cc were required. With the low pH 50/50 T.S.P.P./alkali mixtures, such as T.S.P.P. with sodium bicarbonate or with borax, the quantity required dropped from 1.8-2.0 cc at room temperature to 1.4-1.5 cc at 160° F. With the high pH mixtures the volume required increased to 2.0-2.4 cc at the higher temperatures. This indicates that the Na_2O content in the alkalies is not the main factor in peptizing the Ca, Mg and Fe pyrophosphates. The anions in the alkalis, as the Co_2, SiO_2, B_2O_3 radicals play an important part in the reaction. The following test convinced me of this.

If a 5 per cent T.S.P.P. solution, having a pH of about 10.0 is treated with boric acid till the pH has been reduced to 7, the neutral point, and if this solution is tried out in the above mentioned titration test at various temperatures, only 1.1 cc is required, an improvement of 40 per cent as compared with 1.8 cc for the pure 5 per cent T.S.P.P. solution. In the same manner T.S.P.P. can be neutralized with metaphosphate without losing its efficiency.

Titration curves, obtained by titrating 58.3 ccm tap water (1.6 U. S. grain hardness) containing .2 ccm Standard Soap solution (lather factor) with 5% solutions of T.S.P.P. mixed with alkalies in different proportions to a permanent lather lasting 5 minues at the temperature of 20° C.



Offer Paper Conservation Program for Soap, Drug, Toiletries Firms

A COMMITTEE headed by Roy Peet of Colgate-Palmolive-Peet Co. charged with the formulation of proposals for a program of paper conservation, filed its report with N. A. McKenna, chief of the pulp and paper section of the OPM last month, and the industry is currently waiting the reaction of OPM to the suggestions made. Other members of the committee were J. V. Clark of Allied Products, Inc., Palmer J. Lathrop of Bristol-Myers Co., and John H. Maget of Merck & Co. Preparation of the report was at the request of OPM in an attempt to achieve a 25 per cent reduction in use of paper and packaging materials in these industries.

The report was filed in two sections, the following nine recommendations being made tentatively on October 8.

Drugs and Pharmaceuticals
Proprietaries
Chemicals (packaged—not in bulk)
Toilet Preparations and Cosmetics
Soap

Conservation and Reduction

1. In the belief that forward buying is one of the serious causes of shortages of paper and paper board, we recommend that a directive be issued to industry generally along the following lines. No company shall maintain a floor stock of folding boxes, shipping containers or other paper or paper board in excess of 90 days' requirements with a limit of 90 additional days supply on order except that no limit as to time shall be placed on orders for less than 20 tons.

2. Manufacturers be directed to discontinue the use of shipping cases in excess of the standards prescribed by rule 41 of the Consolidated Freight Classification or by the Interstate Commerce Commission.

3. Manufacturers be directed to discontinue the use of solid fibre board except where Interstate Commerce Commission or other official regulations require them.

4. Manufacturers (Consumers of paper cartons, shipping cases, etc.) be directed to effect all savings practicable in paper and board used in production, packaging and shipping by the following methods:

a. reduction in number and size of labels.
b. reduction in caliper and weight of cartons.
c. reduction in number and size of circular inserts, etc.
d. reduction in size and weight of individual wrappers.
e. reduction in size and weight of shelf wrappers.
f. re-use between supplier's plant and user's plant of shipping cases for cartons, bottles, tubes, etc.
g. re-use of any other incoming shipping cases for outgoing shipments.
h. re-design of packages to use less paper or paper board in relation to product.
i. packaging more units to a shipping case.

Elimination

5. Any directive on elimination should state that manufacturers (consumers of paper and paper board products) should cease the use of the eliminated item in packing 120 days after the date of the directive. This is in order to keep competitive products on a competitive basis. It is almost certain that one organization may have packaging materials on hand to last six months or a year on some item, while another organization may have only a few weeks supply on a competitive item. Under this directive the first organization would be obliged to scrap many months supply of the eliminated item while the second organization would purchase a small quantity to last to the end of the 120-day period.

6. Manufacturers eliminate all paper cartons from products first packaged in metal, glass, wood, plastic, paper, paper board, or from products which in themselves are durable, with the following exceptions:

a. Products which require accessory appliances.
b. Collapsible tubes.
c. Products which require cartons for sanitary protection.
d. Products which require protective covering.
e. Products which absolutely require a circular or insert for technical, scientific or medical directions that cannot be included on label and cannot be incorporated with the bottle by any means other than the use of a carton.

7. Manufacturers eliminate all inserts and circulars with the following exceptions:
a. As required by law.
b. As required for necessary technical, scientific or medical directions which cannot be included on the label.

8. Manufacturers eliminate all display containers. Exceptions:
a. Any display container which also serves as a necessary protective covering.

9. Manufacturers be directed to eliminate superfluous wrappings or protective packaging where not essential for protection or required by law or health authorities.

In a subsequent report submitted October 21, the committee made the nine recommendations formal and added the following:

It is recommended that the Office of Production Management issue as a "directive" subject to exceptions stated below:

10. The caliper of paperboard used in cartons for soap chips, flakes, and granulated, powdered and sprayed soaps, shall not exceed the maximum caliper for the marked net weights shown in the following schedule, with allowance for standard tolerances recognized by the National Paperboard Association.

(Note: Calipers shown are net for board or board and wrapper, exclusive of such coatings or liners as asphalt, wax, clay, etc.)

SCHEDULE 1

Marked Net Weight Ounces	*Maximum Caliper*	*Pounds per 1000 Sq. Ft.* B.M.*	W.P.C.*
0- 5	.016	65	69
5-8½	.018	72	77
8½-12	.020	80	82
12-14	.022	85	88
14-19	.024	90	96
19-26	.026	96	104
26-40	.028	103	112
40-80	.030	111	120

* B.M. means bleached manila lined chip—No. 2 finish.
* W.P.C. means patent coated, regular finish.

Exceptions

(1) For tight wrapped packages, i. e., packages consisting of paperboard shell and outer glued wrapper, the caliper of the board may be .018 even though above standards call for less.
(2) The above standards shall not be compulsory where paperboard of the caliper indicated cannot be obtained from suppliers, and in that event the nearest obtainable cali-

per above that indicated shall be used.

(3) Where combination printing orders are necessary, exception is made so that board used for cartons of lower marked net weight may be of the caliper of the cartons having the higher marked net weight.

11. The caliper of paperboard used in cartons for washing powders shall not exceed the maximum caliper for the marked net weight shown in the following schedule, with allowance for standard tolerances recognized by the National Paperboard Association.

(Note: Calipers shown are net for board or board and wrapper, exclusive of such coatings as asphalt, wax, clay, etc.).

SCHEDULE 2

Marked Net Weight Ounces	*Maximum Caliper*	*Pounds per 1000 Sq. Ft.*	
		*B.M.**	*W.P.C.**
0- 6	.016	65	69
6-12	.018	72	77
12-20	.020	80	82
20-24	.022	85	88
24-32	.024	90	96
32-44	.026	96	104
44-52	.028	103	112
52-56	.030	111	120

* B.M. means bleached manila lined chip—No. 2 finish.

* W.P.C. means patent coated, regular finish.

Exceptions

(1) For tight wrapped packages, i. e., packages consisting of paperboard shell and outer glued paper, the caliper of the board may be .018 even though above standards call for less.

(2) The above standards shall not be compulsory where paperboard of the caliper indicated cannot be obtained from suppliers, and in that event the nearest obtainable caliper above that indicated shall be used.

(3) Where combination printing orders are necessary, exception is made so that board used for cartons of lower marked net weight may be of the caliper of the cartons having the higher marked net weight.

12. The caliper of paperboard used in a carton with closed ends, printed or unprinted, glued or not glued, for an individual bar of soap, shall not exceed .016, weighing 65 pounds per thousand square feet bleached manila or single manila or 69 pounds per thousand square feet of white patent coated, regular finish.

(Note: Calipers shown are net for board or board and wrapper, exclusive of such coatings as asphalt, wax, clay, etc.).

Exceptions

(1) The above standards shall not be compulsory where paperboard of the caliper indicated cannot be obtained from suppliers, and in that event the nearest obtainable caliper above that indicated shall be used.

(2) Where combination printing orders are necessary, exception is made so that board used for cartons of lower marked net weight may be of the caliper of the cartons having the higher marked net weight.

13. The caliper of paperboard used in cartons for collapsible tubes shall not exceed a caliper of .016 weighing 69 lbs. per 1000 sq. ft. on the basis of regular finish white patent coated, except giant sizes holding 5 ounces or more gross weight of contents not including the carton itself shall be allowed a caliper of .018 weighing 77 lbs. per 1000 sq. ft. on the basis of regular finish W.P.C.

(Note: Calipers and weights are net for board and liner exclusive of clay, asphalt, wax, etc., and allowance is granted for standard tolerances recognized by the National Paperboard Association.)

Exceptions

(1) The above standards shall not be compulsory where paperboard of the caliper indicated cannot be obtained from suppliers, and in that event the nearest obtainable caliper above that indicated shall be used.

(2) Heavier caliper board may be used when absolutely necessary for combination runs as a matter of economy to conserve labor and machine hours at point of fabrication.

* * *

We estimate that the total folding paperboard consumption of the soap industry for the twelve months ending September 30, 1941, was 90,000 tons. By the adoption of recommendations Nos. 10, 11 and 12, above, we estimate a savings of 2,050 tons would be effected. This is 2.3 per cent of the folding boxboard consumption of the soap industry.

We estimate that there was a total of 5,000 tons of folding boxboard used for packaging collapsible tubes, and by the adoption of recommendation No. 13 above, a savings of 350 tons would be effected. This is 7 per cent of the consumption.

This still leaves three problems which our committee has before them. These are:

(1) The determination of standards for folding board cartons used for products first packaged in metal, glass, wood, plastic, paper, paperboard and for products which in themselves are durable. This covers a wide variety of products and of companies, and we have asked Mr. Walton Lynch of the Folding Box Committee for suggestions as to standards. He expected to have these on October 15th, but we believe that some conclusion can be reached within the next two weeks.

We do not have any figures available on the tonnage of paperboard used for such cartons and since there is no one company or product that has any material percentage of such business, it is practically impossible for us to make an estimate. Guesses have ranged from 10,000 tons to 20,000 tons. We have asked Mr. Walton Lynch to try to secure through the Folding Box Committee some idea of the tonnage used in such cartons so that we can give you an estimate of savings by the adoption of standards when they are determined.

If any figures on such tonnage are available in your office, we would appreciate your giving them to the chairman of our committee for our study and use.

(2) Our Recommendation No. 6, which covered the elimination of such cartons, is still being studied so that we can give you some estimate of the savings which would be effected by the adoption of this recommendation. There is considerable question as to the net savings of paperboard after the elimination of the carton but allowing for the necessary separators or nesting for glass bottles. Secondly, there is considerable question as to how much additional paper would have to be used by the wholesaler in packing such items for delivery or reshipment to the retailer if cartons are eliminated. As soon as we have some estimate on tonnage we will try to make an estimate of the net savings by the elimination of such cartons.

(3) Work is just being started on set-up boxes. Savings will be possible in this field by two methods:

1. Reduction of caliper of board and weight.
2. Reduction of size of box in relation to product contents.

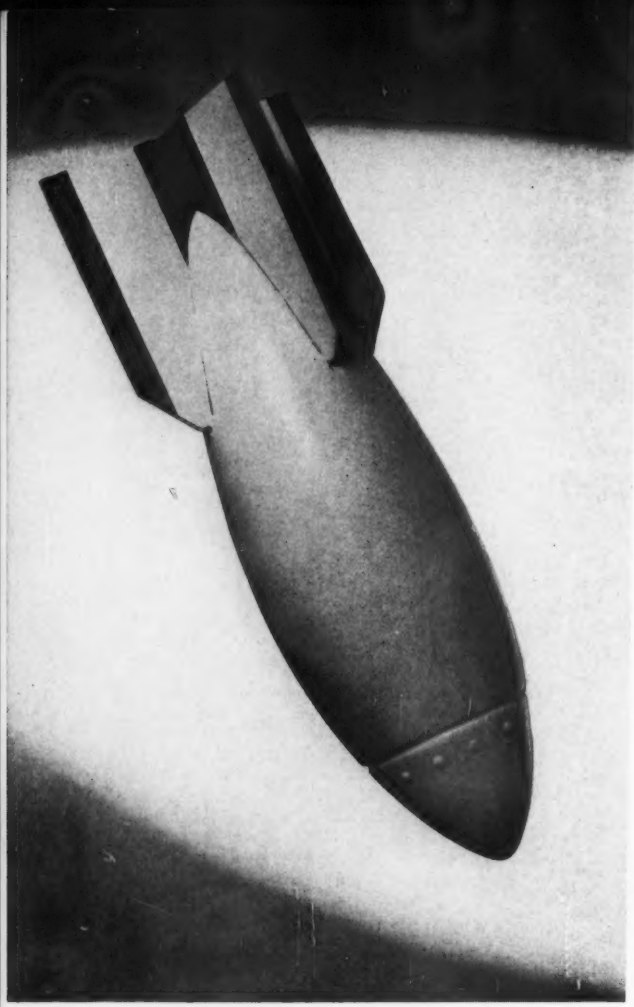
This is a very difficult problem involving a wide range and variety of products and manner of packing, and we are unable at the present to make any estimate as to when standards will be available. This work will be pushed as rapidly as possible.

Here again we are at considerable loss as to the tonnage involved. We will try to get figures from the Set-Up Box Committee which was recently appointed and, working with them, will try to make an estimate as to the savings which will be made by the adoption of such standards as are determined.

If any figures are available in your office on the tonnage of paperboard used in set-up boxes in the industries we are covering,

(*Turn to Page* 69)

New Products and



The Bath Bomb, latest soap novelty of Hunt Club, Ltd., Rochester, N. Y., is equipped with red, white and blue fins which form a stand to hold the soap when not in use. A battleship gray nine-ounce cake, the Bomb retails at 50c.

Shulton, Inc., New York, has not overlooked the children in designing its new gift packages. Latest offerings include soap dolls and soap babies mildly perfumed and packed in wood veneered boxes. The costume is a white wash cloth.

Ferd. Muhlens, Inc., New York, recently brought out its "4711" soap chest for the holiday season. Imbedded in shredded cellophane is an assortment of bath soap and superfatted cream soap in various scents, accompanied by a bottle of eau de cologne—retailing at $5.00.

Packages

Tight-wrapped in cellophane, the new Guest Soap of Lucien Lelong, Chicago, is packaged six small cakes to the box and retails at $1.00. Designed to fit the user's hand, this new product comes in four scents: Carefree, Opening Night, Impromptu and Indiscrete.

Moulded like a dressmaker's dummy, Shocking Silhouette scented soap of Schiaparelli Parfum, Inc., New York, is individually wrapped in cellophane, with frills. Package of three cakes under transparent plastic cover sells for $2.75.

A new gift package just added to the American Memory line of Solon Palmer, New York, "Perfumer to America since 1847," contains two cakes of American Memories Brocade Soap, as well as cologne, perfume, dusting powder and bath salts. Retailing at $5.00.

NEWS....

C-P-P Elects J. K. Colgate

John K. Colgate was elected a director of Colgate-Palmolive-Peet Co., Jersey City, at a recent meeting

J. K. COLGATE

of the board of directors. Mr. Colgate is the son of Russell Colgate who, until his death on July 31, was a member of the board. He is a great grandson of William Colgate, founder of Colgate & Co. in 1806, the oldest of the three companies which, through mergers in 1927 and 1928, became Colgate-Palmolive-Peet Co. For the past thirteen years, Mr. Colgate has been associated with Van Strum & Towne, Inc., investment counsel, New York, of which firm he is secretary, treasurer and a director. He is thirty-six years of age.

Easson Soap Co. Expands

J. L. Easson, proprietor of Easson Soap Co., Portland, Ore., has just purchased a block of ground with a group of buildings and terminal trackage, for expansion of the business which has outgrown its present plant at N.W. 13th Ave. and Hoyt Street. No purchase price was announced, but the property is said to have been appraised at $20,000. The property is bounded by N.W. 13th and 14th Avenues and Quimby and Raleigh Streets. Located on the block are a one-story concrete, a one-story brick and a one-story frame building.

Pioneer Soap Buys Fishbeck

Pioneer Soap Co., San Francisco, bought out Fishbeck Soap Co., also of San Francisco, last month. Fishbeck Soap was known as the oldest soap company on the West Coast and their household soap "Queen Lilly" was distributed both nationally and in the west. According to reports, the Fishbeck soap line will be continued under the supervision of Pioneer Soap, with Howard Bernard at the head of the business.

Fulton Takes Over Beach Soap

A controlling interest in the 113-year-old Beach Soap Co. of Lawrence, Mass., has recently been acquired from Cowles Detergent Co. of Cleveland, by Gordon R. Fulton. Mr. Fulton has been one of the key executives of Beach Soap for over ten years and is well known in the soap field, having formerly been associated with Lever Bros. Co.

The Kendall Manufacturing Co. of Lawrence, Mass., manufacturer of the well-known household product, "New Speed Soapine," has also been acquired by Mr. Fulton. This product has the oldest trade mark in its field and has been on the market since the Civil War.

P. & G. Medical Advisor Dies

Services for Dr. Elbert P. Zeuner, medical advisor of Procter & Gamble Co., were held in Pleasant Ridge, near Cincinnati, last month. He was head of the company's hospital for twenty years.

Bristol Heads OPM Unit

William M. Bristol, Jr., vice-president and director of Bristol-Myers Co., Hillside, N. J., was recent-

WILLIAM M. BRISTOL, JR.

ly appointed chief of the health supply unit of the purchasing division of the OPM, Washington, D. C. Mr. Bristol, an expert on packaging problems, has been active in the campaign to reduce the use of paper by the drug, cosmetic and soap industries. He has been associated with the Bristol-Myers company since 1919 and has been vice-president since 1936.

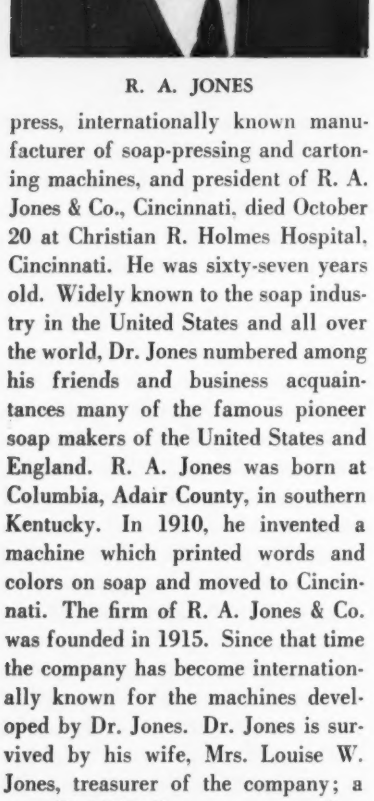
Soap Employment Gains

Soap industry employment and payrolls advanced during August over the preceding month and stood far above the levels of the corresponding period of last year, according to analysis of U. S. Department of Labor statistics. The department's index for wage earners in manufacturing industries, based on the 1923-25 average as 100, listed employment in the production of soap at an August figure of 102.7, compared with 101.4 the previous month and 83.6 for August, 1940.

Payrolls for the industry advanced to 144.4 from 140.6 in July and 101.8 in August of last year.

R. A. Jones Dies

Ruel A. Jones, manufacturer of the first automatic toilet soap



R. A. JONES

press, internationally known manufacturer of soap-pressing and cartoning machines, and president of R. A. Jones & Co., Cincinnati, died October 20 at Christian R. Holmes Hospital, Cincinnati. He was sixty-seven years old. Widely known to the soap industry in the United States and all over the world, Dr. Jones numbered among his friends and business acquaintances many of the famous pioneer soap makers of the United States and England. R. A. Jones was born at Columbia, Adair County, in southern Kentucky. In 1910, he invented a machine which printed words and colors on soap and moved to Cincinnati. The firm of R. A. Jones & Co. was founded in 1915. Since that time the company has become internationally known for the machines developed by Dr. Jones. Dr. Jones is survived by his wife, Mrs. Louise W. Jones, treasurer of the company; a son, Wickliffe Jones, now attending Princeton University; and a daughter.

P. & G. Net Income Up 52%

Procter & Gamble Co., Cincinnati, has just reported its preliminary net income for the quarter ended September 30 as $6,974,603, equal to $1.06 a common share. For the like 1940 period, net income was $4,589,992, or 69 cents a share.

No Tax on Soap Shampoo

Shampoos containing 5 per cent of more of saponaceous material are not subject to the new Federal 10 per cent sales tax on toilet preparations and other luxury items which went into effect October first. But shompoos containing less than 5 per cent of saponaceous material are covered by the new tax. Thus shampoo oils and liquids of the so-called "soapless" variety are taxable as toilet preparations. Specifically excluded from the operation of the new tax are "brushless" shaving creams, as well as "regular" or "lather" shaving creams and other soap products. No soaps are subject to the 10 per cent tax. It does cover, however, bath crystals and salts, deodorants for personal use, hair and scalp lotions, dandruff preparations, foot powders, sunburn preparations, suntan lotions, rose water and glycerine lotions, stain removers for use in removing ink and other stains from the body, toilet pumice, styptics, cosmetics of all types, and other toilet preparations.

Young Rejoins Hunnewell

Leslie Webb, head of Hunnewell Soap Co., manufacturer of industrial soaps, announces the return of C. A. Young as manager of the company's St. Louis district office. Mr. Young has been in army service at Camp Shelby, Miss.

Lever Enters Vitamin Field

Newest product of Lever Brothers Co., Cambridge, Mass., is "Vimms," a low cost vitamin tablet. The tablets, which are being introduced in selected areas, retail at 50 cents per package of 24.

Name Ruston Emery Sales Mgr.

Norman A. Ruston, formerly sales manager, chemical sales division, Emery Industries, Inc., Cincinnati, has just been appointed general sales manager, succeeding Edwin W. Reese, whose death in an automobile accident was reported in *Soap and Sanitary Chemicals* last month. A graduate of Rose Polytechnic Institute with a degree of B. S. in Chemical Engineering, Mr. Ruston has been with Emery for twelve years. He became sales manager of the chemical sales division in 1940. Before his association with the Emery Company, he was employed in sales

NORMAN A. RUSTON

and development work by Twitchell Process Co., which was later absorbed by Emery Industries. Prior to this connection he had been with Ciba Co., as chemist and salesman, and with Sears-Roebuck & Co., Chicago, as chemist. C. W. Sampson, formerly southeastern manager at Charlotte, S. C., succeeds Mr. Ruston as sales manager of the chemical sales division.

Home Laundry Standards

Minimum standards of performance and a uniform method of rating capacities of domestic washing machines are being studied currently by the American Standards Association's committee on defense emergency standards. The committee was formed at the request of the OPA. Manufacturers of household laundering equipment are being polled to determine the savings in scarce materials which can be effected if the number of basic models in each line is curtailed.

P. & G. Employee Buys Home

Mark Upson, division sales manager, Procter & Gamble Co., has purchased a 12-room home in the Walnut Hills residential section of Cincinnati.

E. A. Cudahy, Sr. Dies

Edward Aloysius Cudahy, Sr., one of the founders of Cudahy Packing Co., Chicago, died October 18 at his home in Chicago. He was eighty-one years old. Mr. Cudahy was chairman of the board of the Cudahy company, a position he assumed in 1926 when he retired from the presidency in favor of his son, Edward A. Cudahy, Jr. Born in Milwaukee, son of Irish immigrants, Mr. Cudahy left primary school at the age of thirteen to work as a cowboy for Plankinton & Armour in Milwaukee, where his brother Michael was superintendent. While still in his early twenties, he was made superintendent of the Chicago plant of Armour & Co. In 1887, together with his brother Michael who had become a partner in Armour & Co., and Phillip D. Armour, he began a new business at South Omaha under the name Armour-Cudahy Packing Co. In 1890, Michael Cudahy sold his interests in Armour & Co. and purchased Mr. Armour's interests in Armour-Cudahy Packing Co. and the name of the concern was changed to Cudahy Packing Co. Edward Cudahy assumed the presidency of the firm on the death of his brother in 1910.

C-P-P Develops New Product

Colgate - Palmolive - Peet Co., has developed in its Jersey City research laboratory a formula for use in making rayon absorbent, so that rayon rags can now be utilized for industrial wiping cloths, according to E. D. Szold, executive secretary of the Sanitary Institute of America. The search was conducted by C-P-P Co., Mr. Szold said, in cooperation with the Sanitary Institute and the American Laundry Institute, in an effort to increase supplies of wiping cloths, of which a definite shortage has existed. The development has been officially recognized by the U. S. Navy department, which revised its specifications to permit acceptance of rayon for wiping materials, when they meet the required absorbency tests. The new preparation has found an immediate large market in more than a score laundries and cleaning plants which constitute the membership of the Sanitary Institute, Mr. Szold added. Samples of the new rayon wipers were included in the display made by the Institute at the National Safety Congress in Chicago last month.

Block Crystal Building Plan

An application to the Newark (N. J.) Board of Adjustment by Morris Cohn, Crystal Chemical Co., for an addition to his plant was rejected last month by a 3-2 vote of the board. The proposed addition to the hand soap plant was to have been for storage, but neighbors contended the plant would expand to the detriment of the neighborhood.

Name Drackett to Civic Post

H. R. Drackett, head of the Drackett Co., Cincinnati, was one of fifteen commissioners chosen at a special election to draw up a new charter for the recently incorporated Indian Hill village.

Completes New Alkali Plant

American Chemical Paint Co., Ambler, Pa., has just completed construction of a new alkali plant at Ambler to which are being transferred the manufacture of the company's alkalies and cleaning compounds, formerly manufactured at Newcastle, Del. The move brings all the activities of the company under central control at Ambler.

P. & G. Resumes Car Card Ads

Procter & Gamble Co., Cincinnati, recently resumed advertising "Ivory Flakes" through the medium of car cards after a seven-year lapse.

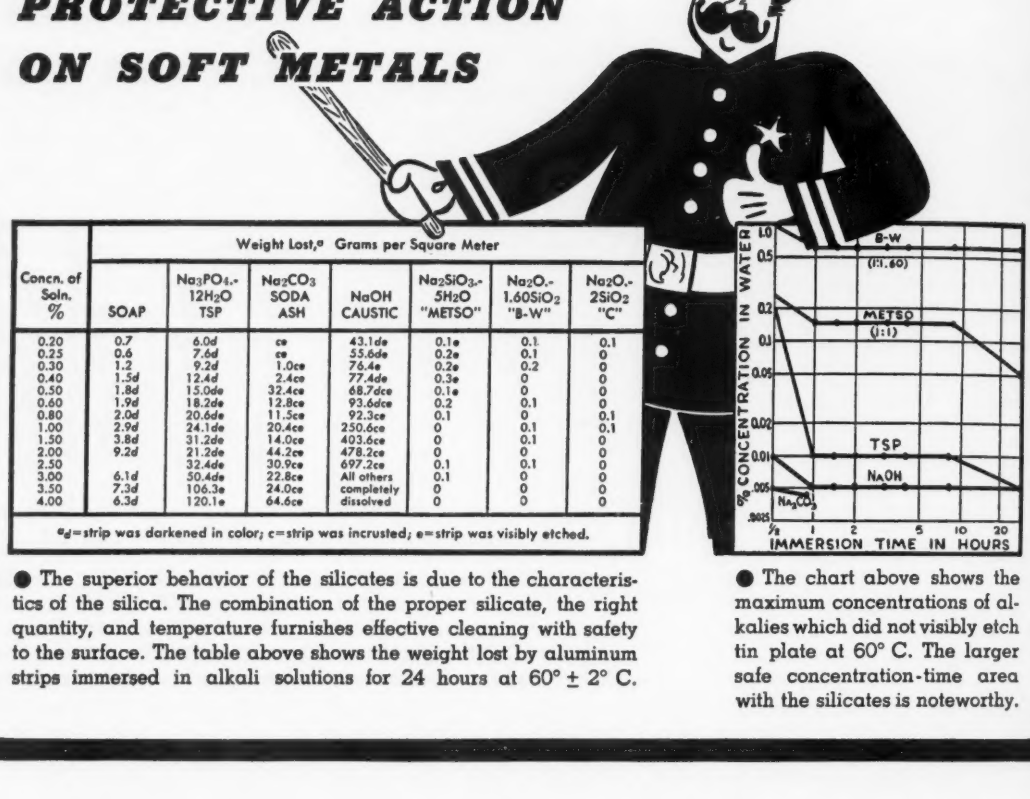
Personalized Soap Co. Moves

Personalized Soap Co., New York, formerly at 55 West 42nd St., recently occupied new quarters at 313 West 75th St. The firm specializes in decorating soap cakes with names of individuals, personalized silhouettes, etc., for gift and novelty purposes.

3,000 Attend Wrisley Picnic

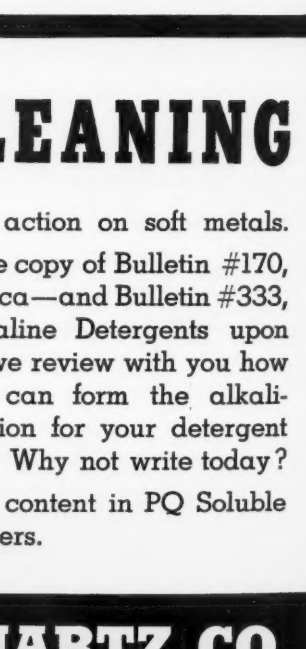
Over three thousand employees, families and friends of Allen B. Wrisley Co., Chicago, attended the annual picnic of the company, held recently at Bergman's Grove, North Riverside, Ill. Everybody connected with the Wrisley organization was there, according to our correspondent, Emil H. Bronner, technical consultant for the company. Company officials and millhands alike participated in such games as softball, horse shoe pitching, egg races, tug-of-war, etc. Among those present were Wrisley B. Oleson, president of the company, and three generations of the Wrisley family represented by J. B. Wrisley, three of his sons — Norton, Allen and George,—and the latter's son, George Wrisley, Jr.

PROTECTIVE ACTION ON SOFT METALS



Concn. of Soln. %	Weight Lost,[a] Grams per Square Meter						
	SOAP	$Na_3PO_4 \cdot 12H_2O$ TSP	Na_2CO_3 SODA ASH	NaOH CAUSTIC	$Na_2SiO_3 \cdot 5H_2O$ "METSO"	$Na_2O \cdot 1.60SiO_2$ "B-W"	$Na_2O \cdot 2SiO_2$ "C"
0.20	0.7	6.0*d*	ce	43.1*de*	0.1*e*	0.1	0.1
0.25	0.6	7.6*d*	ce	55.6*de*	0.2*e*	0.1	0
0.30	1.2	9.2*d*	1.0*ce*	76.4*e*	0.2*e*	0.2	0
0.40	1.5*d*	12.4*d*	2.4*ce*	77.4*de*	0.3*e*	0	0
0.50	1.8*d*	15.0*de*	32.4*ce*	68.7*dce*	0.1*e*	0	0
0.60	1.9*d*	18.2*de*	12.8*ce*	93.6*dce*	0.2	0.1	0
0.80	2.0*d*	20.6*de*	11.5*ce*	92.3*ce*	0.1	0	0.1
1.00	2.9*d*	24.1*de*	20.4*ce*	250.6*ce*	0	0.1	0.1
1.50	3.8*d*	31.2*de*	14.0*ce*	403.6*ce*	0	0.1	0
2.00	9.2*d*	21.2*de*	44.2*ce*	478.2*ce*	0	0	0
2.50		32.4*de*	30.9*ce*	697.2*ce*	0.1	0.1	0
3.00	6.1*d*	50.4*de*	22.8*ce*	All others	0.1	0	0
3.50	7.3*d*	106.3*e*	24.0*ce*	completely	0	0	0
4.00	6.3*d*	120.1*e*	64.6*ce*	dissolved	0	0	0

[a] *d*=strip was darkened in color; *c*=strip was incrusted; *e*=strip was visibly etched.



● The superior behavior of the silicates is due to the characteristics of the silica. The combination of the proper silicate, the right quantity, and temperature furnishes effective cleaning with safety to the surface. The table above shows the weight lost by aluminum strips immersed in alkali solutions for 24 hours at 60° ± 2° C.

● The chart above shows the maximum concentrations of alkalies which did not visibly etch tin plate at 60° C. The larger safe concentration-time area with the silicates is noteworthy.

HOW SiO_2* AIDS CLEANING

Soluble silicates have long been known as detergents. With a better understanding of the role of silica (SiO_2) in washing processes, their high order of efficiency now serves soap manufacturers and fabricators of cleaning compounds more extensively. Illustrated above is an outstanding example of the special behavior of the silica content in PQ Silicates—its protective action on soft metals.

Send for a free copy of Bulletin #170, The Role of Silica—and Bulletin #333, Effect of Alkaline Detergents upon Metals. May we review with you how PQ Silicates can form the alkali-silica foundation for your detergent compositions? Why not write today?

*SiO_2 = silica content in PQ Soluble Silicate Cleaners.

PHILADELPHIA QUARTZ CO.

SILICATES OF SODA

125 S. THIRD STREET, PHILA., PA.

Oil Chemists Hear Soap Talks

THE 15th annual meeting of the American Oil Chemists Society at the Drake Hotel, Chicago, Oct. 8 to 10, brought together several hundred experts in the chemistry of soaps and oils for reports and discussion of new developments in the field of oil and fat chemistry. W. G. McLeod, of Oscar Mayer & Co., Madison, Wis., president of the organization, declared in calling the conference to order that the chemist today has a golden opportunity to do his part in the current world crisis, in the development of new and perhaps cheaper raw materials. In the five sessions of the three-day meeting some twenty papers were presented, of which several were related directly to the chemistry of soap production.

Lead-off man at the opening session was Foster D. Snell, of Foster D. Snell, Inc., New York. In his paper on "Soap and Other Surface-Active Agents," he presented a lengthy review of the various groups of organic chemicals which have lately been developed for surface cleaning purposes. He explained their chemical structure, described their properties and action and offered some appraisal of their advantages for the jobs they are being called on to perform. Further research into the fundamental nature of the new compounds, he predicated, will widen their application with results which may affect soap sales adversely.

W. D. Pohle of the Naval Stores Research Division, U.S.D.A., Washington, D. C., followed Mr. Snell with two papers in the first of which he reported on an investigation of "Foaming Properties of Rosin Soap and Their Comparison with Fatty Acid Soaps." As to the first part of his topic, he said the question "Does rosin soap have foaming properties?" could be answered in the affirmative, but as to "comparisons with fatty acid soaps," the question would have to be answered with qualifications.

He outlined briefly the problem presented for solution and detailed the method used in the investigations. Summarizing, he said: "From the results of this work with soaps made from rosin, modified rosin and rosin acid, it would appear that rosin soap is more like sodium laureate than any other fatty acid soap tested. Other conclusions can be drawn, but because of the controversial nature of the soap problem — such as foaming power — we feel that for the present it is best to stop at this point and let those interested draw their own conclusions, based on their own experience and the data presented. If there is then any question, it will be answered to the best of our ability."

In his second paper on "Solubility of Calcium Soaps of Gum Rosin, Rosin Acids and Fatty Acids," Mr. Pohle again defined his problem, described methods used and summarized as follows: "Only a beginning has been made on what might be done on the question of the solubility of calcium and magnesium soaps. This indicates that the calcium soaps of stearic, palmitic, myristic and lauric acids will precipitate before those of oleic and caprylic acids and the known rosin acids present in rosin."

In a paper on "The Mechanism of Detergency," J. Fred Oesterling, described work done at the Ellen H. Richards Institute, Pennsylvania State College, State College, Pa., by himself and Pauline Beery Mack, over a seven-year period. From his paper we quote the following summary:

"This research dealt with the effect of soap concentrations and sodium oxide content of laundry solutions on the removal of soil from standard soiled fabrics. It also concerns a study of the relation between physical and chemical properties of soap, alkali and soap-alkali combinations in aqueous solutions and their detergent value as measured by standard soiled fabrics. The alkalies investigated were those commonly used in power laundry practice as auxiliary adjuncts to soap, including sodium bicarbonate. Also included in the study were a high titre and a low titre soap.

"The concentration of detergents used in the study were reduced to a common denominator by calculating them on the basis of their sodium oxide content. It was found that the maximum practical soil removal efficiency occurred in all cases within the limits of 0.02 and 0.04 per cent sodium oxide content.

"This particular phenomenon of soil removal efficiency, having an optimum value within this range of sodium oxide content, is of notable importance in power laundry practice because it offers definite explanations for the value of titrations in laundry control work.

"The addition of varying amounts of sodium metasilicate to 0.1 per cent low titre soap solution resulted in marked improvement in soil removal efficiency up to the point where the sum total of sodium oxide content of soap and alkali reached 0.04 per cent. Beyond this point soil removal efficiency dropped off. A plausible explanation for this behavior is to be found in the effect of alkali on the colloidal nature of soap.

"The study further demonstrated a relation between chemical and physical measurements on detergent solutions and practical soil removal tests. A reason for the limits of 0.02 to 0.04 per cent sodium oxide content, which are optimum within practical ranges of concentration, may be found in certain physical and chemical properties associated with soil removal value in a detergent.

"It was also found that an interrelationship exists between all the factors to a greater or less degree, sometimes positive and sometimes negative."

From their studies the two investigators drew up "specifications for a good detergent of the soap and soap-alkali type." In the light of the present study, the report states, it

"1. Should have a short wetting time for the fabric to be washed.

"2. Should have short wetting time for carbon soil.

"3. Should disperse carbon soil, i. e. should have high instantaneous dispersion value.

"4. Should have a high deflocculation value.

"5. Should lower the interfacial tension between an oil-water interface markedly.

"6. Should produce the results above enumerated within practical concentrations of the detergent in water solution.

"The study suggests a method for ascertaining the value of detergents or combinations of detergents of unknown practicalities by giving the relationships of certain physical and chemical properties to practical soil removal. Since the former tests are less time-consuming than practical washing trials involving standard soiled fabrics, contenders for attention in the laundry detergency field may be tested for the properties in question. If they fail to respond favorably to these tests, there will be no need for subjecting them to the more lengthy practical soil removal tests."

C. P. Long, of Procter and Gamble Co., Cincinnati, and a vice president of the Society, presided at the Wednesday soap conference. This year's chairman of the Chicago committee on arrangements was J. J. Vollertsen of Armour & Co. Entertainment during the meeting included a buffet supper and smoker Wednesday evening and a formal banquet with dancing Thursday night. Entertainment was also arranged for the ladies in attendance and following Friday's session, tours were made to various Chicago industrial plants.

Sanitary Supply Firms Exhibit at Chicago National Safety Congress

MANUFACTURERS of soaps and sanitary products were numerously represented at the trade show held in connection with the 30th annual session of the National Safety Congress in Chicago, Oct. 6 to 10. E. I. du Pont de Nemours & Co., Wilmington, exhibited their "Pro-Tek," for skin protection. Compounds for control of athlete's foot were displayed by Onox, Inc., San Francisco, whose district salesman, Leon C. Egner, demonstrated a device employing a rubber sponge in a tray as a new preventive means. In the disinfectant field Mer-Kil Chemical Products Co., Chicago, showed their "Mer-Kil" odorless preparations.

West Disinfecting Co., Long Island City, N. Y., showed "Lanokleen," a "double action" hand cleaner, made by varying formulas for use on different types of jobs. A. H. Flatow, New York, sales promotion and advertising manager, assisted R. O. Jackson, Chicago sales manager and R. H. Labbitt, assistant Chicago manager, at the booth.

G. H. Packwood Mfg. Co., St. Louis, introduced their new "Hyspeed Pax" a powdered soap, of unusually low specific gravity. H. J. Hoffman, Chicago sales manager, said that the new soap is the first soap preparation capable of removing zinc chromate paint from the hands without injury to the skin.

Lightfoot, Schulz & Co., exhibited their "La Grace" line of industrial powdered soaps with W. E. Pemberton, Chicago district manager, in charge. C. B. Dolge Co., Westport, Conn., displayed "Handeez," a hand cleaner for industrial and office use. Great Stuff Products Co., West New York, N. J., showed "Great Stuff" powdered hand soap and "Derma-Cote," a protective hand cream.

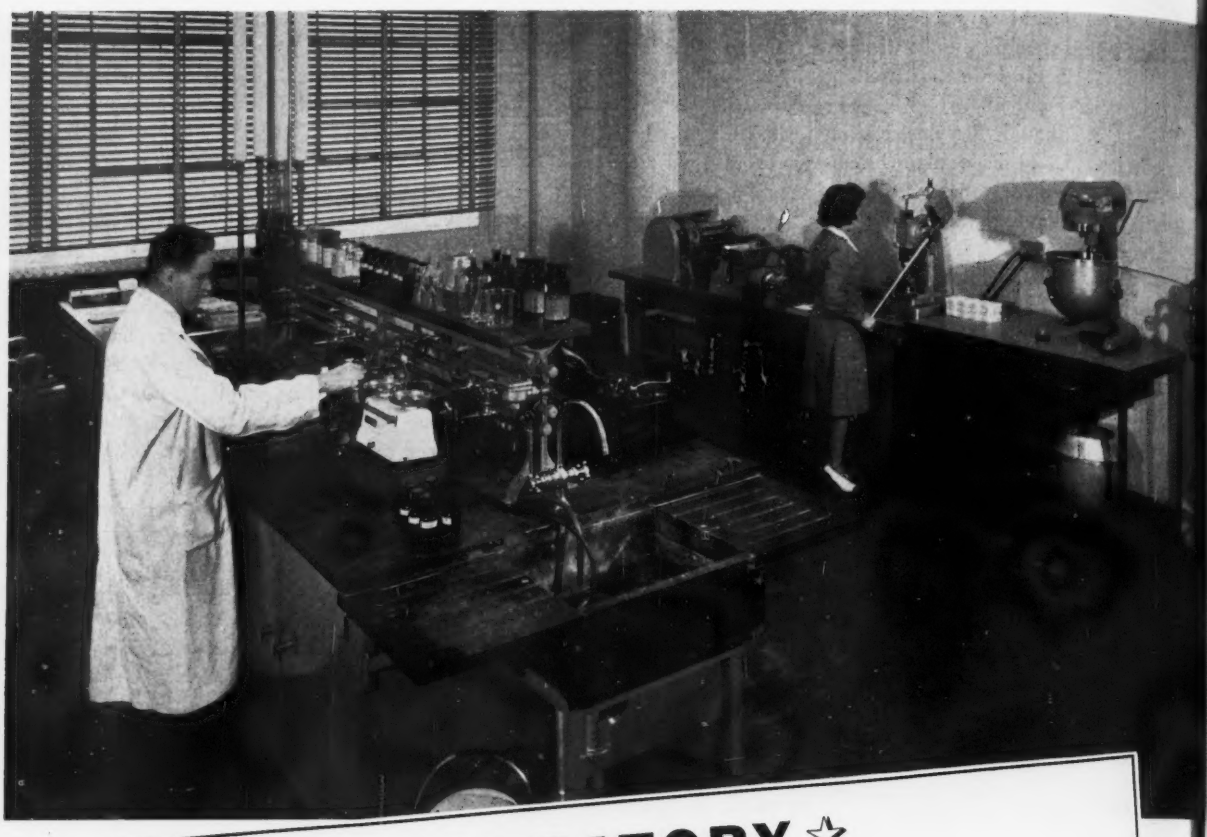
Masury-Young Co., Boston, presented their new "Solagrip," a non-skid floor dressing. Other floor cleaning compounds shown included "Mycotraz," for terrazo and marble floors, "Mycoleum," for composition floors, "Mycosheen," "Mycoseal" and "Mycodresoap" for floor treatment.

Walter G. Legge Co., New York, presented various floor maintenance materials with non-slip features, including their "Leco," "Safco," and "Floor Shine." J. Paul Glenn, Chicago manager, had charge.

Bradley Wash Fountain Co., Milwaukee, displayed wash fountains for group use and their multi-stall shower equipment. R. G. Owen, advertising manager, and R. C. Carlson, salesman, represented the company.

Soaps at Restaurant Show

Restaurant men attending the National Restaurant Association's October convention in Chicago displayed keen interest in a new device exhibited by the J. B. Ford Sales Co., Wyandotte, Mich., for checking the strength of their "Wyandotte Keego" detergent solutions in dish washing machines. The instrument indicates the degree of alkalinity of the solution, so that the correct amount of detergent can be supplied to get best results, preventing waste. John Crowley, Chicago regional supervisor, had charge of the Ford exhibit. Economics Laboratories, St. Paul, exhibited their "Super-Soilax," dishwashing detergent, in a booth which included an animated display to demonstrate the advantages of their product. E. O. Briel and S. G. Lovejoy, of the Chicago sales staff, were in charge. The company's new plant, opened about a year ago, at Newark, N. J., to relieve the pressure on production at the Chicago plant, is already working to capacity, they reported. Dubois Co., Cincinnati, featured "KOL," (Keeps Out Lime) dishwashing compound, together with an automatic overhead dispenser. Decorations of the booth included colored transparencies showing interior views of the company's plant. T. V. Dubois, president, had charge of the presentation, assisted by 12 district supervisors and field representatives.



THIS LABORATORY ☆ WORKS FOR YOU . . .

☆ **This laboratory is a miniature soap plant for the duplication, on a small scale, of modern manufacturing practices. Its equipment includes a stainless steel kettle, quickly convertible into a soap remelter or refining unit for oils and fats; a mixer and crutcher with stainless steel bowl and paddles, adaptable also for use as an amalgamator for mixing milled soap base, pigments and perfume prior to milling; a modern three-roll granite mill for milling soap under conditions which eliminate possibility of contamination with foreign materials; a laboratory plodder with electric heating nozzle to compress milled soap into continuous bars prior to pressing. Ample space is also provided for storage of experimental samples which are aged under conditions similar to those met with in commercial practice.**

IT is one thing to create satisfactory and appealing perfumes for extracts and cosmetics, but quite another to produce them for soaps. That is why we have a separate and distinct research division devoting its time solely to the intricate problems of soap perfuming,—compounding the odors, preparing the soap and testing results under actual conditions of manufacture and use. This work is under the personal observation of skilled soapmakers, chemists and per-

Exhibit at Hairdressers Show

Middlebrooke Lancaster, Inc., Admiracion division of National Oil Products Co., Botany Lanolin Products, Procter & Gamble Distributing Co., F. W. Fitch Co., and Permutit Co., were among the fifty-odd manufacturers and distributors of supplies and products for the beauty trade exhibiting at the 21st annual convention of the National Hairdressers and Cosmetologists Association held at the Hotel Pennsylvania, New York, October 13-16. The Middlebrooke Lancaster company, Brooklyn, was represented at the show by L. E. Macy and Jack Miller in attendance at the booth where the full line of "Nutrine" products was on display. K. R. McKowen, manager of the beauty trade division of Procter & Gamble Distributing Co., Cincinnati, was in charge of the exhibit for that company demonstrating concentrated "Drene" shampoo for professional use. This was the initial showing of the concentrated product to hairdressers in the New York area. C. A. Jackson, assistant manager of the division, G. H. Myers and L. W. Raybold were also in attendance.

The Admiracion division of National Oil Products Co., Harrison, N. J., and F. W. Fitch Co., Des Moines, Iowa, both gave demonstrations of hairdressing at the show. An exhibit of small water conditioning units for beauty parlor use was shown by William O'Prey, in charge of the booth of Permutit Co., New York, assisted by R. J. Rushmore. At the booth of Botany Lanolin Products, Passaic, N. J., "Botany Lanolin" soap was exhibited among other lanolin products of the company.

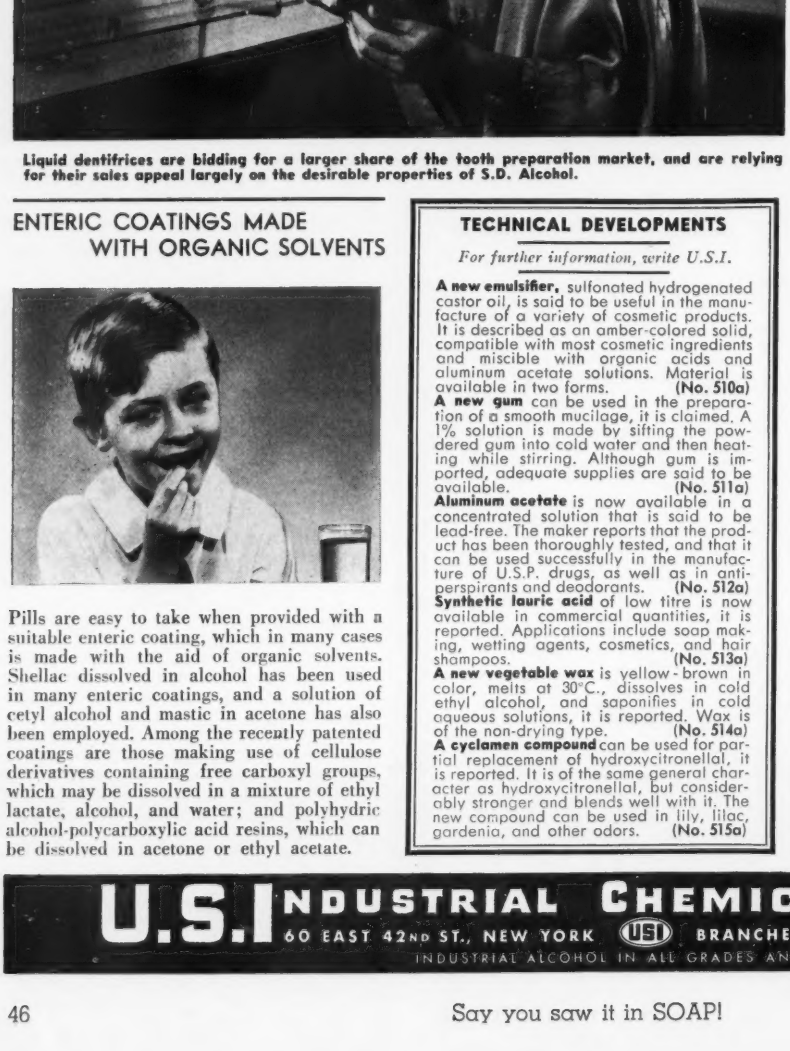
J. B. Ford Dies

John B. Ford, president of Michigan Alkali Co., Detroit, grandson of Capt. John Baptiste Ford, founder of Pittsburgh Plate Glass Works and Michigan Alkali Co., died at his Pointe Grosse home October 8, after a three-week illness of pneumonia. He was seventy-five years old. Mr. Ford had been president of the company for nearly fifty years.

U.S.I. ALCOHOL NEWS

November ★ A Monthly Review of Technical Developments for Chemists and Executives ★ 1941

ALCOHOL IN LIQUID DENTIFRICES



Liquid dentifrices are bidding for a larger share of the tooth preparation market, and are relying for their sales appeal largely on the desirable properties of S.D. Alcohol.

S.D. 38B Is Extensively Used In Formulating These Products

Still relatively new in the field, the liquid dentifrices appear to have plenty of opportunity to expand their market. Most of these products are formulated with the aid of alcohol, and S.D. Alcohol 38B is especially popular because the wide choice of denaturants available helps the dentifrice manufacturer to give sales appeal to his product.

Among the denaturants authorized for S.D. 38B, a mixture of oil of peppermint and oil of wintergreen is regarded as especially suitable for the manufacture of liquid dentifrices, because of the pleasing character of these essential oils. Liquid dentifrices usually also include a wetting agent and a food dye.

ETHYL ALCOHOL NOW UNDER MANDATORY PRIORITY ORDER

In order to assure the fulfilment of the constantly increasing needs of national defense, ethyl alcohol and related compounds have now been added to the already large number of chemical items on the Critical List. To conserve the supply of these chemicals, it has been found necessary to direct the distribution of ethyl alcohol (all grades and formulas), acetone, ethyl ether, ethyl acetate, butanol, and butyl acetate. Toward this end, the Director of Priorities has issued General Preference Order M-30 dated August 28, 1941. Under this mandatory order it is necessary to give preference to defense orders, which subjects all non-defense shipments to unavoidable delays.

Because of this mandatory Priority Order, U.S.I. now finds it necessary to acknowledge all orders with the proviso that defense demands make it impossible to designate definite shipping dates.

ENTERIC COATINGS MADE WITH ORGANIC SOLVENTS

Pills are easy to take when provided with a suitable enteric coating, which in many cases is made with the aid of organic solvents. Shellac dissolved in alcohol has been used in many enteric coatings, and a solution of cetyl alcohol and mastic in acetone has also been employed. Among the recently patented coatings are those making use of cellulose derivatives containing free carboxyl groups, which may be dissolved in a mixture of ethyl lactate, alcohol, and water; and polyhydric alcohol-polycarboxylic acid resins, which can be dissolved in acetone or ethyl acetate.

TECHNICAL DEVELOPMENTS

For further information, write U.S.I.

A new emulsifier, sulfonated hydrogenated castor oil, is said to be useful in the manufacture of a variety of cosmetic products. It is described as an amber-colored solid, compatible with most cosmetic ingredients and miscible with organic acids and aluminum acetate solutions. Material is available in two forms. **(No. 510a)**

A new gum can be used in the preparation of a smooth mucilage, it is claimed. A 1% solution is made by sifting the powdered gum into cold water and then heating while stirring. Although gum is imported, adequate supplies are said to be available. **(No. 511a)**

Aluminum acetate is now available in a concentrated solution that is said to be lead-free. The maker reports that the product has been thoroughly tested, and that it can be used successfully in the manufacture of U.S.P. drugs, as well as in antiperspirants and deodorants. **(No. 512a)**

Synthetic lauric acid of low titre is now available in commercial quantities, it is reported. Applications include soap making, wetting agents, cosmetics, and hair shampoos. **(No. 513a)**

A new vegetable wax is yellow-brown in color, melts at 30°C., dissolves in cold ethyl alcohol, and saponifies in cold aqueous solutions, it is reported. Wax is of the non-drying type. **(No. 514a)**

A cyclamen compound can be used for partial replacement of hydroxycitronellal, it is reported. It is of the same general character as hydroxycitronellal, but considerably stronger and blends well with it. The new compound can be used in lily, lilac, gardenia, and other odors. **(No. 515a)**

COLLODION FIXATION TEST AIDS IN STUDY OF VIRUSES

The identification and typing of disease viruses can be simplified by a novel technique involving collodion fixation, it has been discovered. The study of viruses and of diseases caused by them has been handicapped in the past by the lack of suitable test reactions for detecting very small amounts of the virus. The collodion fixation method has the unusual result, in effect, of magnifying the reaction, thus offering an identification test approximately 1,000 times as delicate as previously known reactions. Possibilities of application are believed to be very wide.

CONTRACTS AWARDED

Glycerine Award

Hildreth Varnish Co., Bklyn., was recently awarded a contract for glycerine at $21,900 in a recent opening by the Army Quartermaster Corps, Washington, D. C.

Washing Compound Award

In a recent opening by the Army Quartermaster Corps, Washington, D. C., E. F. Houghton & Co., Phila., was awarded a contract for washing compound at $1,112.

Laundry Soap Award

Colgate - Palmolive - Peet Co., Jersey City, was awarded a contract for 100,000 cakes laundry soap at $4,583 in a recent opening by the Chicago Quartermaster Depot.

Sodium Fluoride Award

James Good, Phila., was recently awarded a contract for sodium fluoride at $46.08 and another for $322.56 by the Veterans Adm. Procurement Div., Washington, D. C.

Cleaner Award

Davies-Young Soap Co., Dayton, was awarded a contract for 14,000 gals. aircraft cleaning compound at 69c per gal. and another for 39,750 gals. at 66c per gal. in a recent opening by the Army Air Corps Supplies, Wright Field, Ohio.

Laundry Soap Award

Gillam Soap Works, Fort Worth, Texas, was awarded a contract for 40,000 lbs. laundry soap at 5.18c lb. and 20,000 lbs. at 5.28c lb. in a recent opening by the Army Quartermaster Corps, New Orleans.

Cleaner Awards

In a recent opening by the Army Ordnance Dept., Washington, D. C., J. B. Ford Sales Co., Worcester, Mass., was awarded a contract for cleaner at $1,891,69 and Apex Alkali Prods. Co., Upper Darby, Pa., another contract for cleaner at $4,260. Oakite Products, New York, was awarded a contract for metal cleaner at $3,758.41.

Army Soap Awards

The following contracts were awarded in a recent opening by the Army Engineer Supplies, Phila., Pa.: Procter & Gamble Dist. Co., Phila., 10,000 cakes toilet soap, $10 C lbs.; J. Eavenson & Sons, Camden, N. J., 10,000 cakes laundry soap, 5.69c lb. and Iowa Soap Co., Burlington, Iowa, 1,000 lbs. grit hand soap at $11.20 C lbs.

Detergent Award

In a recent opening by the Dept. of Justice, Lewisburg, Pa., Alex C. Gergusson Co., Phila., was awarded a contract for 7,150 lbs. detergent at 6.75c lb.

Hypochlorite Award

Hood Chemical Co., New York, was awarded a contract for 10,900 lbs. calcium hypochlorite at 29c lb. in a recent opening by the Army Quartermaster Corps., Atlanta.

Castile Soap Award

In a recent opening by the Army Ordnance Supplies, San Antonio Arsenal, Texas, R. M. Hollingshead Corp., Camden, N. J., was awarded a contract for 10,000 lbs. leather equipment castile soap at $1,490.

Army Qtm. Awards

In a recent opening by the Army Quartermaster Corps, New Orleans, the following awards were made: Hunnewell Soap Co., Cincinnati, 75,000 cakes grit soap, 2.2c each; Armour & Co., New Orleans, 75,000 lbs. chip soap, 11⅛c lb.; Colgate-Palmolive-Peet Co., Bklyn., 1,250,000 lbs. laundry soap, 5.31c lb.; Gillam Soap Wks., Ft. Worth, Tex., 100,000 lbs. laundry soap, $5.09 cwt., 40,000 lbs., $5.20 cwt., 40,000 lbs., $5.44 cwt.; R. M. Hollingshead Corp., Camden, 20,000 pts. metal polish, 7.44c pt.; Conray Prod. Co., New York, 50,000 cakes grit soap, 2.65c; Tennessee Soap Co., Memphis, Tenn., 245,280 lbs. laundry soap, $5.09 cwt.; Iowa Soap Co., Burlington, Iowa, 37,500 lbs. chip soap, 11c.

Soft Soap Award

Schaeffer Bros. & Powell Mfg. Co., St. Louis, in a recent opening by the Medical Department, Washington, D. C., was awarded a contract for soft soap at $14,806.

Army Qtm. Awards

In a recent opening by the Army Ordnance Supplies, Augusta Arsenal, Ga., R. M. Hollingshead Corp., Camden, N. J., was awarded a contract for rust preventive compound as follows: 2,000 lbs., $107; 5,000 lbs., $95; 55,000 lbs., $89; 55,000 lbs., $77.10. In another opening Wonder Chemical Co., Bklyn., received an award for 4,000 lbs. metal polish at 9.9c and Bowen Bros. Hdw. Co., Augusta, Ga., a contract for 3,000 lbs. scouring powder at 15c per lb.

Rust Preventive Award

In a recent opening by the Army Quartermaster Supplies, Chicago, E. F. Houghton & Co., Phila., was awarded a contract for 40,000 lbs. rust preventive compound at 7.2c.

Saddle Soap Award

R. M. Hollingshead Corp., Camden, N. J., was awarded a contract for 46,644 lbs. saddle soap at 10.19c per lb. in a recent opening by the Army Quartermaster Corps, Jeffersonville, Ind.

Hypochlorite Award

Hood Chemical Co., New York, was awarded a contract for 4,500 lbs. calcium hypochlorite at 30c per lb. in a recent opening by the Army Quartermaster Corps, Camp Lee, Va.

NEW TRADE MARKS

The following trade-marks were published in the October issues of the *Official Gazette* of the United States Patent Office in compliance with Section 6 of the Act of September 20, 1905, as amended March 2, 1907. Notice of opposition must be filed within thirty days of publication. As provided by Section 14, fee of ten dollars must accompany each notice of opposition.

Trade Marks Filed

ARISTOCRAT — This in fancy letters over drawing of riding equipment describing soap. Filed by Hemphill-Miller, Tucson, Ariz., July 7, 1941. Claims use since Jan. 1, 1940.

SPORTSMAN—This in solid letters describing soap. Filed by John Hudson Moore, Inc., New York, July 17, 1941. Claims use since July 7, 1941.

POWDER-ENE — This in solid letters describing cleaning powder. Filed by Von Schrader Mfg. Co., Racine, Wisc., July 14, 1941. Claims use since May 15, 1941.

R.A.F.—This in solid letters describing insecticide. Filed by Superior Petroleum Co., Louisville, Ky., June 19, 1941. Claims use since June 2, 1941.

JAYGOL—This in solid letters describing insecticides. Filed by Jaygol Products Corp., New York, Aug. 8, 1941. Claims use since July 11, 1941.

PLASTOL No. 1 — This in broken letters describing detergent. Filed by National Oil Prods. Co., Harrison, N. J., Apr. 1, 1941. Claims use since Feb. 13, 1939.

PENNSALT—This in solid letters describing cleaners. Filed by Pennsylvania Salt Mfg. Co., Phila., May 7, 1941. Claims use since June 2, 1937.

DESTRUXOL — This in script letters over drawing of a bolt of lightning describing insecticide. Filed by Destruxol Co., Pasadena, Calif., May 21, 1941. Claims use since Apr. 8, 1921.

AMOCO PERMAKOOL—This in solid letters describing radiator cleaner. Filed by American Oil Co., Baltimore, July 29, 1941. Claims use since Oct. 18, 1940.

PHENEX—This in fancy letters describing germicide. Filed by R. & J. Chemical Co., Wilmette, Ill., Aug. 4, 1941. Claims use since Mar. 1, 1940.

DODO—This in outline letters over drawing of household scene describing cleaner. Filed by Pelham & Son, Louisville, June 13, 1940. Claims use since Mar. 1, 1934.

SOAP TREASURES — This in fancy script letters describing soap. Filed by Hewitt Soap Co., Dayton, Aug. 8, 1941. Claims use since July 15, 1941.

DASH-HOUND — This in solid letters describing dog and cat repellent. Filed by Comfort Mfg. Co., Chicago, Aug. 11, 1941. Claims use since Apr. 9, 1941.

POWDAPASTE — This in solid letters describing dentifrice. Filed by Mack Dental Co., Monterey, Calif., Sept. 9, 1941. Claims use since Aug. 25, 1941.

RIM—This in solid letters describing soap. Filed by Sterling Soap Co., New York, June 20, 1939. Claims use since May 31, 1939.

NEET — This in solid letters over drawing of street scene describing polishes and cleaners. Filed by Cleveland Co., Austin, Texas, Dec. 5, 1939. Claims use since May 15, 1939.

INDIANHEAD—This in outline letters inside drawing of Indian and shield describing cleaner. Filed by Indian Head Corp., St. Paul, Minn., Mar. 13, 1941. Claims use since July 31, 1939.

ORNATOX — This in disconnected letters describing insecticides. Filed by General Chemical Co., New York, Aug. 26, 1941. Claims use since July 21, 1941.

COLDIP—This in solid letters describing bactericidal cleaner. Filed by Frank Nau, Portland, Oregon, Aug. 30, 1941. Claims use since January, 1941.

VAPO-COP—This in solid letters describing parasiticides. Filed by California Spray-Chemical Co., Wilmington, Del., Sept. 2, 1941. Claims use since Aug. 11, 1941.

Trade Marks Granted

390,074. Cleaner. C. B. Dolge Co., Westport, Conn. Filed Jan. 12, 1940. Serial No. 427,369. Published Apr. 30, 1940. Class 4.

390,155. Surfacing wax. Fuld Bros., Baltimore. Filed Apr. 29, 1941. Serial No. 443,077. Published July 1, 1941. Class 16.

390,156. Insecticides. Chemurgic Corp., Richmond, Calif. Filed Apr. 30, 1941. Serial No. 443,115. Published June 17, 1941. Class 6.

390,180. Detergent. Morton S. Pine Co., Cleveland. Filed Mar. 17, 1941. Serial No. 441,620. Published July 1, 1941. Class 4.

390,216. Cleaner. S. L. F. Sales & Service Corp., New York. Filed Apr. 8, 1941. Serial No. 442,398. Published July 1, 1941. Class 4.

390,221. Insecticides. Chemurgic Corp., Richmond, Calif. Filed Apr. 12, 1941. Serial No. 442,518. Published June 17, 1941. Class 6.

380,260. Auto Polish. Marshall Products, Nampa, Idaho. Filed May 14, 1940. Serial No. 431,917. Published July 8, 1941. Class 16.

390,319. Soaps. St. Denis Toiletries, New York. Filed May 15, 1941. Serial No. 443,618. Published July 8, 1941. Class 4.

390,320. Soaps. Hewitt Soap Co., Dayton, O. Filed May 16, 1941. Serial No. 443,633. Published July 8, 1941. Class 4.

390,328. Cleaners. Lewis Laboratories, Drexel Hill, Pa. Filed May 22, 1941. Serial No. 443,812. Published July 8, 1941. Class 4.

390,356. Shampoo. Inecto, Inc., New York. Filed Oct. 15, 1937.

Serial No. 398,538. Published Dec. 28, 1937. Class 6.

390,386. Athlete's foot preparation. Alfred Hendrickson, Fargo, N. D. Filed Nov. 8, 1940. Serial No. 437,679. Published July 8, 1941. Class 6.

390,392. Saponaceous compounds. Shulton, Inc., New York. Filed Dec. 18, 1940. Serial No. 438,999. Published July 15, 1941. Class 4.

390,415. Shampoo. Plough, Inc., Memphis. Filed Mar. 14, 1941. Serial No. 441,547. Published July 8, 1941. Class 6.

390,427. Deodorizer. Anglo Soap Corp., New York. Filed Mar. 28, 1941. Serial No. 442,021. Published July 8, 1941. Class 6.

390,429. Shampoo. Lina Caveliero, Inc., Seattle, Wash. Filed March 31, 1941. Serial No. 442,107. Published July 8, 1941. Class 6.

390,469. Soap. Hewitt Soap Co., Dayton. Filed Apr. 29, 1941. Serial No. 443,083. Published July 15, 1941. Class 4.

390,479. Shampoo. Kirby's Prods., Union, S. C. Filed May 6, 1941. Serial No. 443,295. Published July 8, 1941. Class 6.

390,481. Dog shampoo. Magitex Co., Saco, Maine. Filed May 8, 1941. Serial No. 443,368. Published July 8, 1941. Class 6.

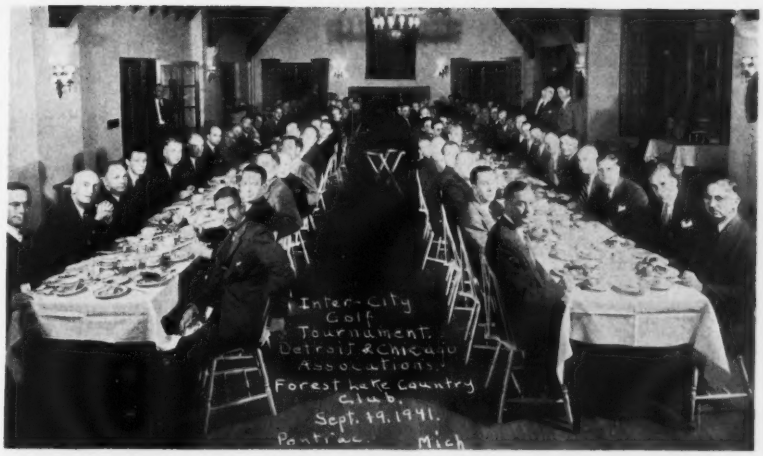
390,512. Athlete's foot preparation. H. V. Laboratories, St. Louis. Filed May 31, 1941. Serial No. 444,080. Published July 15, 1941. Class 6.

390,781. Dentifrice. Crowther Prods., Los Angeles. Filed Sept. 14, 1940. Serial No. 435,968. Published July 22, 1941. Class 6.

390,810. Saddle soap. Stalker Mfg. Co., New York. Filed Mar. 17, 1941. Serial No. 441,799. Published July 29, Class 4.

390,815. Cleaner. Turco Prods., Los Angeles. Filed Apr. 16, 1941. Serial No. 442,642. Published July 29, 1941. Class 4.

390,819. Detergent. Blotex Co., Springfield, O. Filed Apr. 22, 1941. Serial No. 442,827. Published July 29, 1941. Class 4.



Chi.-Detroit Golfers Meet

The Allied Drug and Cosmetic Association of Michigan was host recently to the Chicago Golf Auxiliary consisting of members of the Chicago Soap Perfumery and Extract Association and the Chicago Drug and Chemical Association. The tournament, which was held at the Forest Lake Golf and Country Club, Pontiac, Mich., was won by the Detroit golfers.

Lever Employee Dies

Henry C. Ashton, 44, engineer with Lever Brothers Co., Cambridge, died Oct. 13 at his home in West Medford, Mass. Born in Somerville, Mass., he was a graduate of Somerville High School and Tufts College. He was president of the Progress Club, a group of Lever Brothers employes. Surviving are his wife, the former Leola Hallett; a daughter, Phyllis, and a son, Albert Ashton.

Climalene Sample in Chicago

Climalene Co., Canton, O., conducted a door-to-door sampling campaign in Chicago last month for their "Climalene" detergent for kitchen, bath and general household use.

New Penn Salt Plant

Work is nearly completed on the new plant being erected by Pennsylvania Salt Co. in Portland, Washington. The new plant adjoins the plant of Portland Gas & Coke Co., where they will obtain some of their raw materials. Penn Salt Co. will manufacture sodium chlorate and potassium chlorate at the new plant.

Use Thermometer Premiums

Procter & Gamble Co. is currently offering a cooking thermometer as a premium for purchasers of their new "Velvet Suds Ivory" soap. The instrument was made available for 25 cents, plus wrappers from one cake of "Ivory," large or medium. Swift & Co. have also been using the same type premium in recent offers.

Donaldson Heads Controllers

John A. Donaldson, former assistant controller of Colgate-Palmolive-Peet Co., was elected president of the Controllers Institute of America at its 10th annual convention in New York.

P. & G. Re-elects All Officers

All officers and directors were re-elected at the annual meeting of Procter & Gamble Co. on October 8. Officers are: president, Richard R. Deupree; vice-presidents, Herbert G. French, Floyd M. Barnes, Renton K. Brodie, Clarence J. Huff and Ralph F. Rogan; comptroller, William R. Huber; secretary, H. Truxton Emerson; assistant secretaries, Guy B. Taylor, William H. Watters and Lowe H. Wiggers; treasurer, William H. Tuttle; assistants to treasurer, George S. Woodward, Jr., Roland D. Francis and John W. Friend. The regular quarterly dividend of 50 cents a share was declared on common stock, payable November 15.

WASH GREASE AWAY WITH A *Hose!*

Make degreasing easy for your customers. Get them to use this unusual Concentrated Degreasing Fluid. Just mix it with plain, ordinary kerosene first . . . then pour or spray the solution on the grease covered surface . . . allow it to soak in . . . then wash it *all* away with a hose!

It reduces grease and dirt to a state quickly soluble in water. It leaves a bright, clean surface. No greasy film remains.

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Thanksgiving

was established as an American custom by the Pilgrims in gratitude for the liberty of conscience they found in the New World • Today, with our country engaged in a great effort to help safeguard that liberty for mankind, let us all cooperate wholeheartedly so that, as the years roll on, we and those who carry on after us may have continuing cause for THANKSGIVING.

• And, while on this matter of giving thanks, may we again bespeak our appreciation of your patience with delays so often unavoidable in filling orders • Necessarily Defense requirements must come first, but you may be sure we are also doing our best to take care of our customers on civilian needs.

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RAW MATERIAL MARKETS

As of October 28, 1941

NEW YORK—The setting of price ceilings on glycerine, acetone and methanol by the OPA, and the placing of chlorinated solvents under rigid control by priorities director Nelson were developments during the past month of importance to manufacturers of soaps and sanitary chemicals. Among other chemical raw materials, prices were advanced on cresylic acids, cresols, naphthalene, phenol, and soda ash in burlap bags. The soap oils, however, did not figure in the price advance and quotations were dropped on coconut oil, soybean oil, cottonseed oil, linseed oil and corn oil, mainly as a result of a decline in cottonseed oil, lard and soybean futures, as well as a downward course in other speculative commodities. Buyers seemed to be holding off awaiting further developments in regard to price control legislation. In the essential oil market, with a few exceptions, price revisions were in an upward direction.

Animal Fats

Prices of tallow are unchanged from a month ago and demand is reported to be slow at current levels of 8⅞ cents a pound for extra tallow, fob, N. Y., and 8¾ cents a pound for special, fob, N. Y. Yellow grease is priced at 8⅝ cents a pound, with white grease at 9¼ cents a pound.

Vegetable Oils

Crude coconut oil is still in limited supply with quotations nominal at 7½ cents a pound as compared with 7⅝ cents a pound a month ago. Some sellers have withdrawn offerings of coconut oil pending further developments in the Pacific freight situation. In the Philippines, coconut oil and copra are at highest levels since 1937. On the West Coast, coconut oil futures remain at a level of 6½ to 6⅝ cents a pound. Bulk copra was reduced 10 cents a hundred to a level of $4.00 to $4.10 a hundred. Resale palm oil, N. Y., is currently quoted at 7⅜ to 7½ cents a pound, with offerings very limited. Quotations on crude soybean oil dropped one cent during the month, the drop being occasioned by lower quotations on cotton oil futures. Current prices on crude soybean oil, November forward, are 9⅞ to 10 cents a pound. Corn oil, cottonseed oil, linseed oil and peanut oil are all at lower levels than a month ago.

Set Glycerine Price Ceiling

A price schedule on glycerine which establishes base maximum prices of 11½ cents a pound on crude glycerine and 18 cents a pound for refined, as compared with current prices of 18 cents a pound for crude and 21½ cents a pound for refined, was announced October 27 by the OPA. The schedule is to become effective November 10. It covers sales of glycerine in containers of 500 pounds or more. Crude glycerine is separated into four grades: soap lye (basis 80 per cent glycerol); saponification (basis 88 per cent) for individual uses; saponification (basis 88 per cent) to refiners; and crude glycerine of other glycerol percentages. Prices set by the OPA schedule are: soap lye, 11½ cents a pound, tank cars or drums; saponification for individual uses, 12¾ cents a pound, tank cars, fob, point of manufacture, 13¾ cents a pound, drums, cl, and 14¾ cents a pound, drums, lcl; saponification to refiners, 12¾ cents a pound, tank cars or drums; crude glycerine of other glycerol percentages, 11½ cents a pound, basis 80 per cent glycerol content. Refined glycerine is divided into five grades: chemically pure glycerine (98 per cent glycerol); chemically pure glycerine (U.S.P. 95 per cent glycerol); dynamite; high gravity; and yellow distilled. Prices are: C.P. 98 per cent grade, 18½ cents a pound, tank cars; other grades, 18 cents a pound. Premiums ranging from ¼ to ¾ cents a pound are allowed for shipments in drums, cl, and lcl. A 2-cent premium may be charged to deliveries to Zone "B".

Essential Oils

During the past month, numerous essential oils and aromatic chemicals which were scarce became still scarcer with stocks of practically all items extremely low. Only price drops during the period came when both Ceylon and Java citronella oil prices were reduced as primary markets resumed offerings at lower levels, and oil of anise was reduced somewhat. Items now quoted at higher levels than a month ago include oil of pineneedle Siberian, oil of peppermint, oil of cajeput, oil of sweet almond, oil of cananga, oil of caraway seed, cedar wood oil, oil of vetiver, Java, benzyl acetate, eugenol, geraniol, menthol and phenylacetic acid.

Insecticide Materials

Prices of derris and cube powder, 5 per cent rotenone, were advanced by some sellers during the period to a level of 34 to 36 cents a pound. The U. S. Government has expressed interest in maintaining stocks of the materials at high levels as part of the program of insuring a large American agricultural crop in 1942-43 when demand for food is expected to be high. Present stocks are more than a year's supply.

RAW MATERIAL PRICES

(As of October 28, 1941)

Minimum Prices are for car lots and large quantities. Price range represents variation in quotations from different suppliers and for varying quantities.

Chemicals

Acetone, C.P., drums	lb.	$ .08½	$ .09½
Acid, Boric, bbls., 99½%	ton	96.00	128.00
Cresylic, drums	gal.	.76	.83
Low boiling grade	gal.	.76	.83
Muriatic, C. P., carboys	lb.	.08	—
Oxalic, bbls.	lb.	.10¾	.12
Adeps Lanae, hydrous, drums	lb.	.22	.23
Anhydrous, drums	lb.	.23	.25
Alcohol, Ethyl, U.S.P., bbls.	gal.	7.92½	7.99
Complete Denat., SD1, dms., ex.	gal.	.33½	.38½
Alum. Potash lump, bbls.	lb.	.04	—
Ammonia Water, 26°, drums	lb.	.02¼	.02½
Ammonium Carbonate, tech., bbls.	lb.	.08	—
Bentonite, 1, works, 325 mesh	ton	16.00	—
Bentonite, 2, works, 200 mesh	ton	11.00	—
Bleaching Powder, drums	100 lb.	2.00	3.35
Borax, pd., cryst., bbls., kegs	ton	55.00	74.00
Carbon Tetrachloride, car lots	gal.	.66½	1.10
L. C. L.	gal.	.73	1.20
Caustic, see Soda Caustic, Potash Caustic			
China Clay, filler	ton	10.0(	16.00
Cresol, U.S.P., drums	lb.	.10¼	.11¼
Creosote Oil	gal.	.13½	.14½
Feldspar, works (200 to 325 mesh)	ton	32.00	35.00
Formaldehyde, bbls.	lb.	.05½	.06
Fullers Earth	ton	15.00	—
Glycerine, C.P., drums	lb.	.19½	.25
Dynamite, drums	lb.	—	Nom.
Saponification, drums	lb.	.19	.21½
Soap, lye, drums	lb.	.16	.18
Hexalin, drums	lb.	.30	—
Lanolin, see Adeps Lanae.			
Lime, live, bbls.	ton	6.25	13.00
Mercury Bichloride, kegs	lb.	2.24	—
Naphthalene, ref. flakes, bbls.	lb.	.08	.08½
Nitrobenzene (Mirbane) drums	lb.	.08	.09
Paradichlorbenzene, drums	lb.	.11	.13½
Petrolatum, bbls. (as to color)	lb.	.03½	.08
Phenol (Carbolic Acid) drums	lb.	.12½	.14¾
Pine Oils, bbls.	gal.	.65	.68
Potash, Caustic, solid	lb.	.06¼	.06¾
Flake, 88-92%	lb.	.07	—
Liquid, 45% basis	lb.	.02⅞	.03¾
Potassium Carbonate, solid	lb.	.06½	.06¾
Liquid	lb.	.02¾	.03⅛
Pumice Stone, powder	100 lb.	No Prices	
Rosins (net wt., ex yard, New York)—			
Grade D to H.	100 lb.	3.09	3.16
Grade I to N	100 lb.	3.09	3.43
Grade WG to X	100 lb.	3.44	3.56
Wood, ex. dock	100 lb.	2.91	3.82
Rotten Stone, pwd., bbls.	lb.	.12¾	.18¾
Silica	ton	20.00	27.00
Soap, Mottled	lb.	.04⅛	.04½
Olive Castile, bars	lb.	.28	.38
Olive Castile, powder	lb.	.33	.40
Powdered White, Neutral	lb.	.24	—
Olive Oil Foot, bars, 68-70%	lb.	—	—
Green, U.S.P.	lb.	.09	.10
Tallow Chips, 88%, car lots	lb.	.09½	—
Soda Ash, cont., wks., bags, bbls.	100 lb.	1.10	1.35
Carlots, in bulk	100 lb.	.90	.95
Soda Caustic, cont., wks., solid	100 lb.	2.30	—
Flake	100 lb.	2.70	2.95
Liquid, tanks, 47-49%	100 lb.	1.95	—
Soda Sal., bbls.	100 lb.	1.10	1.30
Sodium Chloride (Salt)	ton	14.20	16.60
Sodium Fluoride, bbls.	lb.	.08	.09¼
Sodium Hydrosulfite, bbls.	lb.	.16	.17
Sodium Metasilicate, anhyd.	100 lb.	4.00	5.30
Granulated	100 lb.	2.50	3.55
Sodium Pyrophosphate	100 lb.	5.10	5.60
Sodium Silicate, 40 deg., drum	100 lb.	.80	1.20
Drums, 52 deg. wks.	100 lb.	1.40	1.80
Tar Acid Oils, 15-25%	gal.	.22	.29½
Triethanolamine	lb.	.19	.20
Trisodium Phosphate, bags, bbls.	100 lb.	2.85	3.60
Zinc Oxide, lead free	lb.	.06½	.07

Oils — Fats — Greases

Babassu, tanks, futures	lb.	.10⅛	Nom.
Castor, No. 1, bbls.	lb.	.13¼	.14¼
No. 3, bbls.	lb.	.12¾	.13¾
Coconut (without excise tax)			
Manila, tanks, N. Y.	lb.	.07½	Nom.
Tanks, Pacific Coast, futures	lb.	.06½	.06⅝
Copra, bulk, coast	lb.	.0400	Nom.
Corn, tanks, West	lb.	.11¼	Nom.
Cottonseed, crude, tanks, mill	lb.	.11½	.11¾
PSY, futures	lb.	.12½	.12¾
Fatty Acids—			
Corn Oil, tanks, Chicago	lb.	.14¼	.14½
Coconut Oil, tanks, Twitchell, Chi.	lb.	.15¾	.16
Cotton Oil, tanks, Chicago	lb.	.13½	.13¾
Settled soap stock, Chicago	lb.	.03⅜	.03½
Boiled soap stock, 65%, Chi.	lb.	.04⅜	.04½
Foots, 50%, Chicago	lb.	.03½	.03¾
Red Oil, bbls., dist. or sapon.	lb.	.12	.13½
Tanks	lb.	.11¼	—
Stearic Acid, saponif.			
Double pressed	lb.	.14¼	—
Triple pressed	lb.	.17	—
Greases, choice white, tanks	lb.	.09¼	—
Yellow	lb.	.08⅝	—
Lard, city, tubs	lb.	.10⅝	.10¾
Linseed, raw, bbl.	lb.	.1040	.1060
Tanks, raw	lb.	.0950	.0970
Olive, denatured, bbls., N. Y.	gal.	4.00	Nom.
Foots, bbls., N. Y.	lb.	.17	.17½
Palm, Sumatra, cif. New York, tanks	lb.	.07⅜	Nom.
Palm, kernel, f.o.b. San F.	lb.	—	Nom.
Peanut, crude, tanks	lb.	.11½	.11¾
Soya Bean, domestic, tanks, crude	lb.	.09⅞	.10
Stearin, oleo, bbls.	lb.	.10¼	.10½
Tallow, special, f.o.b. N. Y.	lb.	.08¾	—
City, ex. loose, f.o.b. N. Y.	lb.	.08⅞	—
Teaseed Oil, crude	lb.	.28	Nom.
Whale, refined	lb.	.1070	Nom.

(As of October 28, 1941)

Essential Oils

Almond, Bitter, U.S.P.	lb.	$3.50	$3.75
Bitter, F.F.P.A.	lb.	4.75	5.00
Sweet, cans	lb.	2.25	2.50
Anise, cans, U.S.P.	lb.	1.05	Nom.
Bay, 55-66% phenols, cans	lb.	1.00	1.35
Bergamot, coppers	lb.	20.00	Nom.
Artificial	lb.	2.95	9.25
Birch Tar, rect., cans	lb.	1.50	2.00
Crude, cans	lb.	.90	.95
Bois de Rose, Brazilian	lb.	3.65	4.15
Cayenne	lb.	—	—
Cade (juniper tar), cans	lb.	.72	.95
Cajeput, native, cans	lb.	1.15	1.20
Calamus, cans	lb.	—	—
Camphor, Sassy, drums	lb.	.27	Nom.
White, drums	lb.	.30	Nom.
Cananga, native, cans	lb.	12.00	12.50
Rectified, cans	lb.	13.00	13.50
Caraway Seed	lb.	14.00	Nom.
Cassia, Redistilled, U.S.P.	lb.	7.00	Nom.
Cedar Leaf, cans	lb.	1.03	1.38
Cedar Wood, light, drums	lb.	.35	.37
Citronella, Java, drums	lb.	.75	.80
Citronella, Ceylon, drums	lb.	.95	1.00
Clove, U.S.P., cans	lb.	1.35	1.40
Eucalyptus, Austl., U.S.P., cans	lb.	.68	.73
Fennel, sweet, cans	lb.	2.50	2.75
Geranium, African, cans	lb.	16.00	Nom.
Bourbon, cans	lb.	17.00	Nom.
Turkish (Palmarosa)	lb.	3.15	3.50
Hemlock, tins	lb.	.93	1.15
Lavender, 30-32% ester, cans	lb.	—	—
Spike, Spanish, cans	lb.	2.65	3.25
Lemon, Ital., U.S.P.	lb.	5.50	Nom.
Cal.	lb.	3.25	—
Lemongrass, native, cans	lb.	2.00	2.25
Linaloe, Mex., cases	lb.	3.50	3.75
Nutmeg, U.S.P., cans	lb.	2.15	2.65
Orange, Sweet, W. Ind., cans	lb.	4.75	6.00
Italian cop	lb.	8.00	Nom.
Distilled	lb.	1.60	—
California, expressed	lb.	3.00	—
Origanum, cans, tech	lb.	1.50	2.45
Patchouli	lb.	5.25	6.25
Pennyroyal, dom.	lb.	2.50	2.65
Imported	lb.	2.40	2.75
Peppermint, nat., cans	lb.	3.75	3.90
Redis., U.S.P., cans	lb.	4.00	4.15
Petitgrain, S. A., cans	lb.	1.70	1.75
Pine Needle, Siberian	lb.	2.40	2.50
Rosemary, Spanish, cans	lb.	.88	1.03
drums	lb.	.85	1.00
Sandalwood, E. Ind., U.S.P.	lb.	5.40	5.50
Sassafras, U.S.P.	lb.	1.05	1.20
Artificial, drums	lb.	—	—
Spearmint, U.S.P.	lb.	2.55	2.80
Thyme, red, N. F.	lb.	1.85	2.25
White, N. F.	lb.	1.95	2.50
Vetiver, Java	lb.	17.50	Nom.
Ylang Ylang, Bourbon	lb.	—	—

Aromatic Chemicals

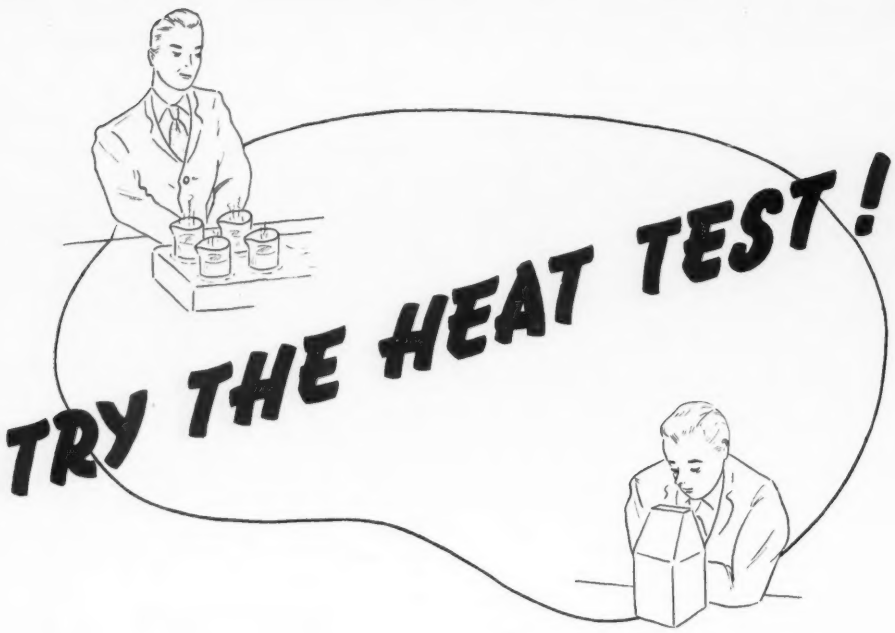
Acetophenone, C. P.	lb.	$1.55	$1.60
Amyl Cinnamic Aldehyde	lb.	1.90	2.00
Anethol	lb.	1.15	1.20
Benzaldehyde, tech.	lb.	—	Nom.
N. F. VI	lb.	—	—
Benzyl, Acetate	lb.	.55	.59
Alcohol	lb.	.63	.68
Citral	lb.	3.00	4.00
Citronellal	lb.	1.50	Nom.
Citronellol	lb.	1.75	Nom.
Citronellyl Acetate	lb.	4.00	Nom.
Coumarin	lb.	2.75	3.25
Cymene, drums	gal.	1.25	—
Diphenyl oxide	lb.	.43	.50
Eucalyptol, U.S.P.	lb.	1.15	1.25
Eugenol, U.S.P.	lb.	2.40	2.50
Geraniol, Soap	lb.	1.10	1.50
Other grades	lb.	1.50	3.50
Geranyl Acetate	lb.	1.50	2.50
Heliotropin	lb.	3.00	3.40
Hydroxycitronellal	lb.	5.25	Nom.
Indol, C. P.	lb.	32.00	34.00
Ionone	lb.	2.75	3.95
Isoborneol	lb.	.90	1.07
Iso-bornyl acetate	lb.	.80	.95
Iso-Eugenol	lb.	2.90	4.25
Linolool	lb.	5.00	7.50
Linalyl Acetate	lb.	3.00	Nom.
Menthol, natural	lb.	8.00	8.50
Synthetic, U.S.P.	lb.	—	—
Methyl Acetophenone	lb.	2.50	3.00
Anthranilate	lb.	—	—
Paracresol	lb.	4.50	6.00
Salicylate, U.S.P.	lb.	.35	.40
Musk Ambrette	lb.	3.75	4.20
Ketone	lb.	3.90	4.35
Xylol	lb.	1.15	1.55
Phenylacetaldehyde	lb.	4.00	Nom.
Phenylacetic Acid	lb.	1.85	Nom.
Phenylethyl Alcohol	lb.	2.10	2.50
Rhodinol	lb.	30.00	35.00
Safrol	lb.	1.25	1.50
Terpineol, C.P., drs.	lb.	.27	—
Cans	lb.	.30	—
Terpinyl Acetate, 25 lb. cans	lb.	.80	.85
Thymol, U.S.P.	lb.	2.35	—
Vanillin, U.S.P.	lb.	2.50	2.75
Yara Yara	lb.	1.45	1.50

Insecticide Materials

Insect Powder, bbls.	lb.	.20	.21
Pyrethrum Extract			
5 to 1	gal.	1.10	1.15
20 to 1	gal.	4.20	4.40
30 to 1	gal.	6.20	6.50
Derris, powder—4%	lb.	.31	.33
Derris, powder—5%	lb.	.34	.36
Cube, powder—4%	lb.	.31	.33
Cube, powder—5%	lb.	.34	.36
Squill, red, dried	lb.	.50	.58

Waxes

Bees, white	lb.	.56	.58
African, bgs.	lb.	—	—
Refined, yel.	lb.	.51	.52
Candelilla, bgs.	lb.	.30	.33
Carnauba, No. 1, yellow	lb.	.86	.87
No. 2, N. C.	lb.	.84	.85
No. 3, Chalky	lb.	.74	.76
Ceresin, yellow	lb.	.12½	.17
Montan Wax	lb.	No Prices	
Paraffin, ref., 125-130	lb.	.0570	—



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* Based on tests by Roy M. Allen, prominent microscopist of Bloomfield, N. J., using a regular commercial grade of NUCHAR Active Carbon.

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PRODUCTION SECTION

A section of SOAP devoted to the technology of oils, fats, and soaps published prior to Jan. 1, 1932, as a separate magazine under the title, Oil & Fat Industries.

Bentonite in Soaps

BENTONITE, a natural mineral found in the United States, Canada, North Africa, and Italy, varies somewhat in composition according to the source. Essentially it is a hydrated silicate of aluminum, the Wyoming product having the following composition:

	Per Cent
SiO_2	60.18
CaO	0.22
K_2O	1.23
Al_2O_3	26.58
MgO	1.01
H_2O	10.26

The value of bentonite lies in its ability to adsorb enormous amounts of water, with which it forms a gelatinous paste remaining in suspension. The swelling power of the material is remarkable because bentonite consists of crystalline compounds but behaves like a colloid. X-ray analysis shows that its physical structure resembles that of mica. With the aid of the electron microscope the particles are shown to have a thickness of 1 millimicron and a length of about 300 millimicrons.

The swelling power of the material gives an estimate of its quality, the greater the swelling power, the better the quality. Different grades swell to 7-15 times the initial volume in water. Swelling is reversible if pure water is used. With 6-7 parts of water, a thick paste is formed. To determine swelling power and hence quality, add 2.5 grams of powdered, air-dried bentonite to a test tube of water and let stand for 24 hours. At the end of this period measure the volume of the powder. Results by this test have been obtained varying from 1.7 to 15.5 cc. With 18-20 parts of water, a somewhat viscous liquid is formed. With 0.5 per cent in tap water, a stable suspension results; below this concentration flocculation is caused by the salts present in the water. With distilled water a stable dispersion can be produced up to 1 part in 5,000. Bentonite suspensoids are negatively charged, the particles moving in an electric current to the positive pole. If colloids having a positive charge are added to the suspension, neutralization of the charges occurs, accompanied by flocculation. This principle is used in certain industrial clarification processes where impurities are originally suspended as positively charged particles. Some electrolytes increase the suspending power of bentonite, also increasing viscosity.

In use, bentonite is preferably added to warm water and allowed to cool and swell before this suspension is added to other materials such as soap. Best dispersion is obtained by gradual addition of the powder to water, with mechanical stirring. With active stirring of 1900 liters of water, a 5 per cent dispersion can be obtained at the end of an hour, a 17 per cent at the end of 2½ hours. Dispersion is more rapid in the presence of lime water, soda ash, sodium chloride, trisodium phosphate, ammonium bicarbonate, etc. but unfortunately to the detriment of the quality of the bentonite. The same viscosity can be produced with a decrease in the quantity of bentonite if 1-2 grams of electrolyte are added per 4 liters of dispersion. The electrolyte should be added after the bentonite has been mixed with water, to obtain good dispersion.

Practical tests show that the various grades of bentonite have a capacity of adsorbing colored materials in the same proportion as their swelling capacity in water. Among the many industrial applications of bentonite are its use in the manufacture of soap and detergent products, as a water softener, as an emulsifying agent, and for the purification of fats and oils. F. Gruber. *Bull. des Matieres Grasses* **25**, 9-7 (1941).

—♦—

Coconut or babassu oils or other oils are refined by mixing an

alkali with the oil to neutralize free fatty acids and form soap stock. The mixture is stratified and at least a part of the soap stock separated from the oil. The remaining oil is mixed with water and a substantial quantity of the previously stratified soap stock formed by the neutralization treatment. The oil is separated by centrifugal force from the soap stock and water. Arthur U. Ayres, to Sharples Corp. U. S. Patent No. 2,247,430.

◆

Aluminum Corrosion Inhibited

Several proprietary dishwashing compounds in one-half per cent solution, were found appreciably to attack commercial aluminum and aluminum utensils. Curves are shown illustrating also the corrosive effect on commercial aluminum of one-half per cent aqueous mixture, in various proportions, of the salts usually present in such compounds. Sodium metasilicate was found to be a more efficient inhibitor than either trisodium phosphate or sodium pyrophosphate. Replacement of the soda ash by either trisodium phosphate or sodium pyrophosphate so as to give a final soda ash content of 40-45 per cent was required before less sodium metasilicate than about 20 per cent produced inhibition of the attack. The addition of about 25 per cent of sodium metasilicate to such proprietary compounds is advisable. J. F. J. Thomas. *Can. J. Research* **19B,** 153-7 (1941).

◆

Liquid Soap Dispenser

A dispenser for soap solutions consists of a reservoir for the solution, a float chamber connected with it, and a graduated measuring chamber connected with the float chamber. The relative heights of the float chamber and measuring chamber can be varied so that the amount of detergent dispensed from the measuring chamber is varied. The measuring chamber has a discharge opening. A three-way valve connects the float chamber, measuring chamber and discharge opening. C. M. Moore, to Diversey Corp. Ltd. Canadian Patent No. 399,494.

Alkylolamine Detergents

Detergent compositions are produced by adding oleic acid to an alkyalkylolamine with stirring, at approximately room temperature. The ratio of acid to amine is about 1:5 by volume. Reaction takes place with a spontaneous rise in temperature. When the temperature has fallen, a further amount of acid is added, and the procedure repeated until the volume of acid equals that of the amine. An amount of water equal to about one-fifth part by volume is added with stirring to the product, together with one-fifth part by volume, as a catalyst, of the monoethyl ether of diethylene glycol. Hydrolysis occurs with a spontaneous rise in temperature. About 10.8 parts of water are added and four-fifths part by volume of the ether. Hydrolysis is allowed to go to completion. W. O. Mitscherling, to John J. O'Connor. U. S. Patent No. 2,244,721.

◆

Purifying Spent Soap Lye

Although spent soap lye may contain as little as 0.1 per cent of the lower sodium soaps, — caproate to caprate, — after salting out the higher soaps, — laurate, and myristate, — removal is essential to the quality of glycerine recovered from the lye. About half of the lower fatty-acid content is removed by extracting the faintly acidified lye with a melt of hydrogenated oil. Evaporation to 40-50 per cent glycerine content, and precipitation as alkaline-earth or heavy metal soaps is a more effective method. So is adsorption with 0.2 per cent of active carbon from the acidified lye at 80° C. One of the best coagulants for deproteinizing spent lye is aluminum sulfate, since it can also serve as a source of aluminum hydroxide for adsorption of colored impurities. The best result is given by adding aluminum sulfate until the pH is in the range 5.5-6.5. M. Zaliopo. *Masloboino-Zhirovaya Prom.* **16,** No. 5/6, 28-30; through *Chem. Abs.*

POWDERED SOAPS . . .

"New Angles on Powdered Soaps" — a discussion of types, characteristics, manufacture and uses of these almost pure, anhydrous pulverized soaps which appear to be finding wider application today than ever . . . by Dr. E. G. Thomssen of the J. R. Watkins Co. . . . in the next issue of SOAP & SANITARY CHEMICALS.

◆

Municipal Water Stabilization

Application of 1 p.p.m. of sodium hexametaphosphate appeared to stabilize the water supply of a municipality, but after five months' operation a white deposit in the meters rendered them inoperative. Examination of the water indicated that the metaphosphate was being converted to orthophosphate before the water reached the outlying districts. Increasing the dosage to 2 p.p.m. appears to have corrected the difficulty, 0.5 p.p.m. of metaphosphate being found in the distant parts of the distribution system. R. H. Sandwisch. Ohio Conf. Water Purification, 20*th Ann. Rept.* 1940, 95 (1941).

◆

Sodium Silicate

Since sodium silicate is always used in solution, it is prepared in that form by the manufacturers. "Alkaline" silicate solution of the formula $Na_2O:2.06SiO_2$, and other relatively easily dissolved brands are treated in stationary dissolvers. "Neutral" silicate, $Na_2O:3.3SiO_2$, and those of kindred composition are dissolved in rotary digesters. A highly siliceous silicate, $Na_2O:4.2\ SiO_2$, is prepared by electrolysis, this silicate being difficult to produce by other methods. Bruno Schweiz. *Chem. Age* **45,** 59-60 (1941).

◆

Fatty Acid Separation

Small amounts of mixtures of higher, straight-chain, saturated fatty acids can be separated into their components by the use of Tswett's adsorption column, using commercial carbon as the adsorbent. No unusual or expensive apparatus is required. Harold G. Cassidy. *J. Am. Chem. Soc.* **63,** 2735-9 (1941).

Alkalinity and Skin pH

Unavoidable cleansing of the skin of workers with raw industrial materials decreases the protective reaction of the skin, which is mildly acid, and predisposes to the production of dermatitis. Ordinary cleansing solutions have a pH of about 9 and influence the acidity of the skin to a degree which depends on the quality of the skin, and not merely on the actual pH but on the titration alkalinity or the buffer capacity, in which the alkali reserve of the material plays a role. The authors measured by the modified Bülmann hydroquinone glass electrode method the reaction of the cutaneous surface and the actual alkalinity and potential alkalinity or buffer capacity of five cleansing solutions. Actual alkalinity of these varied from pH 9 to 10, while the potential alkalinity varied from 6.5 to 50 in terms of cc. of Normal hydrochloric acid necessary to lower the pH to 5.5. A simplified practical method for determining relative buffer capacity is by use of phenolphthalein, which becomes colorless at about pH 8.5. After washing the skin with 1 gram of various cleansers for 1 minute, the pH of the skin rose sharply and returned to normal or nearly normal in 4 hours. It is recommended that the titration alkalinity of a cleanser with a pH value over 9 should not be over 10, that is, 10 cc. of normal hydrochloric acid should reduce the pH of 100 cc. of a 10 per cent solution to below pH 8.5. L. Peukert. *Arch. Dermatol. Syphilis* **181,** 417-24.

New Book on Cosmetics

The Chemistry and Manufacture of Cosmetics. Maison G. de Navarre. Published by D. Van Nostrand Co., New York. 746 pages. $8.00.

The manufacture of soaps, shampoos, shaving creams, dental preparations, bath softeners and suntan preparations are included in Mr. Navarre's exhaustive text on the science of making cosmetics. The sections devoted to these products, as would be expected, form only a small part of the work, the bulk of it being concerned with cosmetics as the word is commonly used, covering face creams, lotions, powders, make-up, hair waving, etc. Making no pretence of covering the manufacture of soaps except cursorily, the author has concentrated on shampoos and shaving creams in his soap section. These items are covered quite thoroughly. Numerous formulas are suggested for soap shampoos and soapless shampoos, and for lather and brushless shaving creams. Over forty pages are given over to dentifrices of the various types, with formulas illustrating each one. An equal space is devoted to suntan preparations. Chapters on equipment, fundamentals of chemistry, preservatives, physiology of the skin, and legal regulations make the book a well-rounded and useful reference and text for the cosmetician.

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Wetting Agents

As wetting, dispersing and frothing agents, liquids are used containing ternary or quaternary ammonium salts derived from pyridine or quinoline and substituted on at least 1 carbon atom of the nucleus by an aliphatic radical containing at least 6 carbon atoms. N. V. de Bataafsche Petroleum Maatschappij. French Patent No. 849,399; through *Chem. Abs.*

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Soap Press

A soap press contains a pivoted matrix bar fitted with mould cavities. Soap cakes are fed to the bar while it is in a certain position. The bar moves to a second position, where the cakes are pressed, then returns to its initial position, when the soap cakes are ejected from the bar. John Van Buren. Canadian Patent No. 399,451.

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Oil Rancidity Inhibitor

About 0.05-1 per cent of a neutral phosphate of a polyhydric phenol is incorporated to inhibit development of rancidity in animal and vegetable oils. Geo. D. Martin, to Monsanto Chemical Co. U. S. Patent No. 2,247,280.

Court Upholds Lorenz Patent

The U. S. Circuit Court of Appeals for the Third Circuit in a decision handed down October 1, reversed the judgment of Judge William Clark of the U. S. District Court of New Jersey in regard to the originality of invention of a process for manufacturing soaps contested between Dr. H. W. F. Lorenz, of Jersey City, and Colgate-Palmolive-Peet Co., Jersey City. The invention concerns the production of soap and glycerine by saponification of fats under reduced pressure, in the absence of air, in intimate contact with steam, and at a temperature higher than the melting point of the resulting anhydrous soap. The method is said to yield glycerine in undecomposed form and a soap which is not discolored. Judge William Clark had previously awarded priority of invention to H. M. Ittner, of Colgate, and had held the Lorenz patent to be invalid, overruling the findings of the patent Examiner. This decision was reversed by the U. S. Circuit Court of Appeals and the case remanded for further proceedings on points not passed on by the court. The opinion ruled: "We can find no justification in the evidence for overruling the Examiner's findings that the first 19 claims of the Ittner patent embodied the teaching of the disclosures made in the January, 1920, application. With that established, the award of priority of invention to Lorenz followed as a necessary consequence under the undeniable facts . . . The learned court . . . therefore erred in awarding priority of invention to Ittner and in holding the Lorenz patent invalid on that ground."

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Fatty Acid Determination

To determine fatty acids in soaps containing emulsifiers, dissolve 10 grams of soap in 80 cc. of boiling water, add 30 cc. of 95 per cent alcohol, centrifuge 5 minutes at 2500 r.p.m., wash the deposit with water-alcohol and from the solution separate the fatty acids in the usual manner. Francesco Muntoni. *Ann. chim. applicata* **31,** 131-2 (1941); through *Chem. Abs.*

A Most Efficient Horizontal CRUTCHING MACHINE

For Making Scouring, Laundry or Floating Soaps

Typical of our complete line of soap making machines.

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In this fine crutcher thorough mixing is secured by means of a series of steel blades fastened to the central shaft, which is supported in bearings at each end and provided with leak-proof stuffing boxes.

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Manufacturers of Soap Making Equipment

HAWTHORNE — FIFTH and VAN WINKLE AVENUES — NEW JERSEY

PRODUCTS AND PROCESSES

Cleaning Agent

A cleaning and dispersing agent consists of a mixture of derivatives of a fatty alcohol such as stearyl alcohol, particularly salts of fatty alcohol-sulfuric acid esters, soluble salts of alkylcyclohexanol sulfuric acid esters, and soluble inorganic alkali salts. H. Bertsch and H. Stober, to Böhme Fettchemie-G.m.b.H. German Patent No. 696,-904; through *Chem. Abs.*

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Vacuum Plodding

Improvement in the manufacture of soap is made by partially drying the soap, milling it, forcing it through a screen, then subjecting it to a vacuum to remove air and other gases. The soap is plodded while under a vacuum to give a product free from striations. J. A. Schwantes, to Colgate-Palmolive-Peet. Canadian Patent No. 399,639.

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Detergent Aids

Improved detergent aids are prepared by condensing tetra-isobutylene with a phenol in the presence of at least a molal equivalent of a strong polybasic mineral acid. The resulting derivative of the alkalated phenol is neutralized with a water-soluble base. L. A. Mikeska. Standard Oil Development Co. Canadian Patent No. 399,866.

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Bath Salts

Bath salts consist of crystalline salts such as soda ash, Glauber's salt, sodium thiosulfate, disodium phosphate, sodium chloride, etc. The first two effloresce or lose water of crystallization easily, even in well closed containers, while the phosphate is not now available in Germany. Soda ash may be used, which can be prepared in any size of crystal desired, or rock salt, which can be obtained directly as colored crystals from a solution containing a basic dyestuff. Perfuming with 5-10 grams to 1 kilogram of crystals, may utilize the following combination: 30 parts of pine oil, 10 of spike oil, 4 of eucalyptus oil, and 2 each of sage and lavender oil. *Seifensieder-Ztg.* 68, 249 (1941).

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Saponin Detergent

Saponin is greatly improved by an addition of water-soluble cellulose ethers. Such additions smooth the saponin and act as emulsifiers. Still further improvements are made by incorporating condensation products of fatty acids, or saponification products. H. Schmittmann Komm.-Ges. German Patent No. 696,126; through *Chem. Abs.*

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Liquid Glass Cleaner

A liquid suitable for cleaning glass or metals consists of a mixture of 0.125 parts of glycerine, 5.625 of oxalic acid, 0.25 of potassium chromate, and 94 per cent of water. The liquid ingredients are present in per cent by volume, the solid ingredients in per cent by weight. Paul A. Salz. U. S. Patent No. 2,245,052.

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Soap Powder, German Formula

A soap powder with a content of only 3 per cent of soap may be made from: 6 parts of 50 per cent powdered soap, 30 of washing soda, 5 of sodium metasilicate 5-hydrate, 1 of Tylose, 40 of calcined soda ash, and 18 parts of calcined Glauber's salt. *Seifensieder-Ztg.* 68, 250 (1941).

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Detergent

A water-soluble salt of an aromatic sulfonic acid and a water-soluble inorganic salt such as sodium sulfate, are made into a solution or suspension. This is dried by spray-drying or drum-drying to give a product having a moisture content of 1.5-5 per cent and a specific gravity of 0.1-0.5. At least 20 per cent by weight of the inorganic sulfate is preferred. Some of the sulfonic acid salts are: alkali metal salts of alkylated naphthalene sulfonic acids and alkylated biphenyl sulfonic acids. Monsanto Chemical Co. British Patent No. 523,479.

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Cold-made Soap

Fatty acids, rosin and tall oil are dispersed in the required amount of water in a colloidal mill or similar apparatus, without the use of dispersants. The mass is saponified in the usual kneading machines with concentrated caustic soda. H. Plauson. German Patent No. 693,241.

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Cleaner Contains Flour

A cleaning compound contains the following ingredients intimately mixed together in substantially the following proportions by weight; Flour 46 per cent, sodium chloride 2.5, soda ash 2.5, liquid paraffin 5, and water 44 per cent. Harry F. Randall. British Patent No. 523,259; through *Chem. Abs.*

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Emulsifier and Detergent

An olefin halide containing at least three carbon atoms is treated with oleum, sulfur trioxide, chlorosulfonic acid or other agent having a stronger sulfonating action than 100 per cent sulfuric acid. The reaction mixture is diluted with water. Colgate-Palmolive-Peet Co. British Patent No. 516,735.

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Glycerine-pitch Treatment

Glycerine-pitch, the residue from glycerine distillation, is diluted with water and neutralized. The neutral solution is adsorbed on a material having a large surface area such as sawdust, fullers' earth or silica, and dried. It is then extracted with an organic solvent such as acetone, acetic ester or low-boiling alcohols. The solvent is vaporized and the product decolorized if desired. The di- and poly-glycerols recovered are industrially valuable. A. Hintermaier and W. Kapitel, to Hendel & Cie. G.m. b. H. German Patent No. 696,822; through *Chem. Abs.*

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- Unbreakable plastic, metal back plate, metal reinforcement in spout and bracket.
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Complete copies of any patents or trade-mark registration reported below may be obtained by sending 25c for each copy desired to Lancaster, Allwine and Rommel. Any inquiries relating to Patent or Trade-Mark Law will also be freely answered by these attorneys.

No. 2,254,665, Insect Repellent, patented on September 2, 1941 by Anderson W. Ralston and John P. Barrett, Chicago, assignors to Armour and Co., Chicago. An insect repellent having as its essential active ingredient a primary aliphatic alcohol having from ten to fourteen carbon atoms.

No. 2,255,629, Method of Inhibiting Clouding of Liquid Soap During Storage in Glass Containers, patented on September 9, 1941 by Harry L. Roschen, Maywood, Ill., assignor to Industrial Patents Corp., Chicago. The method of inhibiting clouding of liquid potassium coconut oil soap during storage of the soap in glass containers which comprises removing the insoluble calcium and magnesium compounds by filtering the soap solution, and thereafter adding to the soap from 1 per cent to 2 per cent sodium hexametaphosphate, based upon the total soap content of the solution.

No. 2,255,694, Disinfectant, patented on September 9, 1941 by Edward B. Beale, Rockville, Md. A composition of matter primarily adapted for disinfecting the interior and porous surfaces of shoes made essentially of leather and the like, which consists of an emulsion, one phase of which comprises an oil which is characterized by being readily emulsifiable, readily absorbed by leather and when absorbed by leather by having the qualities of softening the leather and protecting it against the deleterious effects of moisture, the other phase of which comprises a water solution of a water-soluble disinfectant substance, the disinfectant substance being characterized by having the power to inhibit and destroy the anaerobic organisms responsible for "athlete's foot."

No. 2,256,528, Polish and Cleanser, patented on September 23, 1941 by Louis F. Rowe, Southbridge, and Carl G. Silverberg, Brookfield, Mass., and Alexis G. Pincus, State College, Pa., assignors to American Optical Co., Southbridge, Mass. A material for use as a polisher, a cleanser, a purifier, a catalyst or a catalyst carrier or other uses comprising a fine grained, non-toxic, non-staining material resulting from the heat treatment of a batch of kaolinic clay for a time interval sufficient to heat the individual particles of clay to a temperature ranging between 1000° to 2100° F., with the temperature of the heat used in the treatment according to the particular batch of clay, being of a given amount within the range so as to be below the temperature point at which it will cause an appreciable portion of the clay to sinter into hard lumps and lose its effectiveness as a glass polisher as compared with rouge.

No. 2,257,467, Cleaning Composition, patented on September 30, 1941 by Samuel Jacobson, Cincinnati, assignor to Max H. Thurnauer, Cincinnati. A cleansing composition in the form of a gelatinous paste of uniform consistency, the constituting components of which are aqueous solution of sodium silicate of about 10 per cent strength by weight, about 30 parts by volume, water, about 20 parts by volume, and hydrochloric acid having a specific gravity of about 1.19, about 50 parts by volume, the paste being capable of liberating the acid, thereby enabling the composition to exert a cleansing action upon soil over which the paste is deposited.

No. 2,257,545, Detergent, patented on September 30, 1941 by Francis J. Curtis, St. Louis, assignor to Monsanto Chemical Co., St. Louis. A finely divided substantially dry detergent composition comprising a water-soluble alkaline reacting normally dry detergent and a solid diluent comprising an inorganic "aerogel," the "aerogel" exerting an anticaking action and an emulsifying and dissolving action when the composition is added to water.

No. 2,257,597, Insecticide and Seed Disinfectant, patented on September 30, 1941 by Otto Fivian, Locarno-Muralto, Switzerland. Preparation for combating pests comprising 1 to 1½ per cent of a solution of sulphur in alcohol, 5 per cent of potassium dinitro-orthocresolate, 5 to 12 per cent of an alkali metal sulphide, 2 to 5 per cent soft soap, and the remainder water.

Swift Names 4 New V-P's

The board of directors of Swift & Co., Chicago, recently elected four new vice-presidents, it was announced by John Holmes, president of the company. New vice-presidents are: Porter M. Jarvis, assisting the president; Eugene A. Moss, in charge of by-products; Dr. Roy C. Newton, in charge of research; and Charles T. Prindeville, in charge of cotton and soybean oil mills. Mr. Moss has been manager of the Chicago plant for the past three years. Dr. Newton has been chief chemist of Swift & Co. since 1931. Mr. Prindeville has been associated with the company for 20 years, much of which time was devoted to oil mills. Mr. Jarvis has been with the company since 1926.

Robert L. Harmon Dies

Robert L. Harmon, head of Evans, Nye & Harmon, New York advertising agency, died at his home in Springfield, N. J., late in September. The immediate cause of his death was a heart attack, but he had not been in the best of health for some time. Mr. Harmon had been active in the drug and chemical field for over 20 years, having acted as advertising agent for a number of drug, chemical and can manufacturing firms during that period.

P. & G. Use No-Wipe Ad Theme

"Cleaner Dishes Without Wiping" is the theme of new newspaper copy appearing lately for Procter & Gamble Company's powdered soap product, "Dreft." Use of "Dreft," according to claims made in the copy, makes the toweling process unnecessary, eliminating the possibility of spreading bacteria from contaminated dish cloths.

NEW EQUIPMENT

IF YOU want additional information on any of the items described below or if you want any of the bulletins, catalogs, etc., write to the MacNair-Dorland Co., Inc., 254 West 31st St., New York, mentioning the number of the item.

846—Selling to Restaurants

"How to Advertise and Sell to Hotels and Restaurants," a new 36-page booklet just brought out by Ahrens Publishing Co., publisher of *Hotel Management* and *Restaurant Management*, presents graphically a study of advertising in the hotel and restaurant field with an analysis of the types of advertisements which have proven successful. Various products are studied individually from the point of view of the buyer.

847—50-Gallon Pumping Units

First shipments of the new 50-gallon "Duplex" pumping units of Blackmer Pump Co., Grand Rapids, Mich., have just been made, the company has announced. The new unit, developed for use in bulk stations, blending plants and refineries, is especially designed for use where two different liquids are to be handled by the same pumping unit. Of standard Blackmer "Bucket Design," the pumps can be furnished with removable liners where corrosive liquids are being handled. Capacity is 100 GPM with pumps operating simultaneously, and operating pressure is 100 psi. with lubricating liquids and 75 psi. with non-lubricating liquids. Deliveries are being made with reasonable promptness, it is said.

848—Floor Maintenance

Articles on floor maintenance problems form a prominent part of the October issue of *Floor Craft*, magazine of the Continental College of Floor Efficiency, Brazil, Ind. The cleaning and maintenance of terrazzo and rubber floors are reviewed in the leading article, while marble cleaners are discussed in an article entitled, "Even Marble Gets Dirty Sometimes." Treatment of acid-stained concrete is also covered.

849—Packaging Machinery

"O. P. M." (Obsolete Packaging Machinery) is the title of a new bulletin just issued by Packaging Machinery Co., Springfield, Mass., which describes three of the seventy-odd models produced by the company. The excessive costs of obsolete packaging machinery, in labor, maintenance and materials, are contrasted with the savings said to be made possible through the use of modern equipment. Models described cover a wide range of package sizes and packaging speeds.

850—Ball & Pebble Mills

The Porter line of ball and pebble mills, ranging in capacities from 7.6 gal. to 3,100 gals., is described in a folder just issued by the process equipment division of H. K. Porter Co., Pittsburgh. Standard parts include rolled steel machine cut gears, self-aligning anti-friction bearings, separate grinding and discharge doors. Mills are either unlined or lined, and are equipped for motor or belt drives.

851—Truck Cleaning Manual

Oakite Products, Inc., New York, is distributing to motor truck fleet operators a 36-page cleaning manual carrying data about its line of detergents and cleaning products. Several new and improved materials are described for cleaning metals by hot or cold solution before repair, cleaning pistons and other aluminum parts; cleaning motor and chassis by steam gun or pressure spray; washing truck bodies and reconditioning clogged radiators and cooling systems. Other helpful data is supplied on such maintenance work as de-sludging motors; cleaning and brightening carburetors and fuel pumps; cleaning, deodorization and germicidal treatment for food truck interiors; and cleaning garage floors, greasy lifts and pits.

852—Shellac Data

A new publication, "What You Should Know About Shellac," just released by Stewart Research Laboratory, Washington, D. C., contains information on shellac presented in simplified form. The first of a series of Stewart project reports, it is available at $1.00 a copy, mimeographed and bound. The 12-page report was written by J. R. Stewart and C. R. Cornthwaite.

Ketones from Fatty Acids

Fats containing unsaturated fatty acids and hydroxy acids have been shown to decompose by the action of molds to form ketones. Saturated acids were studied to see whether the same sort of decomposition occurs. Reaction is believed to take place according to the following steps: Saturated fatty acid → *alpha-beta*-unsaturated acids → *beta*-hydroxy acids → *beta*-ketoacids → methyl ketone.

Pure triglycerides were used in the tests, 0.1 gram being dispersed in the warm nutrient solution, cooled and inoculated with spores of *Penicillium glaucum*. Varying amounts of ketones were formed, depending on the original fat and on the pH of the medium. With trilaurin at pH 6, relatively large amounts of ketone were formed, less at pH 3 and pH 5, and almost none at moderately alkaline values. The maximum ketone formation with trilaurin at pH 6 occurred after 10 days and amounted to a yield of 12 per cent. In all cases free fatty acids are believed to be formed first. The effect of the glycerine liberated, in promoting or inhibiting ketone formation in the presence of mold is not known. H. Thaler and W. Eisenlohr. *Fette und Seifen* **48**, 316-21 (1941).

Glycerine

(*from Page* 28)

through the press. Number 2 treat contains a less bulky precipitate and frequently several charges may be passed through without cleaning. However, this is only true if the pH of No. 1 treat is on the high side. If it is on the low side, say at 3.7, considerable bulk of precipitate will come down in No. 2 treat and filtration may be very difficult indeed.

A typical two treat system using ferrous sulfate (copperas) as the precipitating medium is as follows: a 90,000 pound charge is drawn in, the temperature raised to 135-155° C. and 120 pounds of copperas is added in solution. Oxidation and agitation is carried out by means of compressed air. Usually it takes 3-4 hours before oxidation is complete as may be tested by the operator with ferric ferrocyanide solution. The lye is then brought to the acid side using either sulfuric or muriatic, filtered, made alkaline and re-filtered.

Either sulfuric or muriatic acids may be used in neutralizing the lye, although muriatic, of course, is to be preferred since it does not increase the sulfate content of the salt. For the same reason, alum and copperas are not as desirable as the chloride salts, although sulfates do not usually become troublesome in the evaporators until they reach 12-15 per cent at which time the salt is usually discarded. The matter is chiefly one of price balance between the various precipitants and the cost of salt.

The finished lye is usually held decidedly on the alkaline side for evaporation to prevent foaming, although the same effect may be obtained on the acid side and both methods are practiced. From considerations of quality of product evaporation under slightly acid conditions is decidedly superior, as it enables certain low molecular weight acids to pass off in the vapor. However, certain types of evaporators are better suited to handling alkaline lye and such is the general custom.

(*To Be Continued*)

References

(1) U. S. Pat. 2,061,122/1936; Brit. Pat. 421,284/1933.
(2) Ger. Pat. 298,593/1915; Ger. Pat. 343,321/1917; Can. Pat. 343,742/1934; Brit. Pat. 488,464/1937.
(3) *Oil, Paint & Drug Reporter*, June 29/1936: 20.
(4) *Ind. & Eng. Chem. News Ed.* 630: 1938.
(5) *Ind. Chem.* 23: 1938.
(6) *Ind. & Eng. Chem.* 1329: 1932. *Oil & Soap*, 67: 1932.
(7) Thomssen, E. G. and Kemp, C. R., Modern Soap Making, MacNair-Dorland Co., N. Y., 1937.
(8) Bertram, H. S., *Rec. trav. chim.* 57: 681-687: 1938.

Paper Conservation Program

(*from Page* 33)

we should appreciate your giving this information to the chairman of our committee for our study and use.

We have discussed the problem on shipping cases but see no possibilities for further savings along this line by "directives," except by the adoption of two recommendations we have previously given you. Out of the work of the Soap Committee has come the suggestion that a minimum amount of container board is used if the shipping case conforms to the following formula:

"The dimension of shipping containers should as nearly as possible have an equal length and depth, with width one-half the length."

This means that the opening from which the container is packed is twice the dimension one way as the other, and this allows for a minimum overlap of container board on the flaps of the container. This suggestion might be given to any committee you have appointed from the container industry so that they can urge all manufacturers to adopt shipping containers of this type.

We will send on to you the recommendations on the three phases of the work we are still continuing as outlined above, and, in the meantime, if you have any suggestions we should be glad to receive them as we are anxious to cooperate in every way possible.

Synthetic Lauric Acid

Synthetically produced lauric acid of low titer, under the name of Lauralene, is available in large quantities from Beacon Co., Boston. It is useful in soap making, wetting agents, shampoos, etc. Specifications are as follows: acid number 324, saponification number 366, per cent unsaponifiable 0.2, and Lovibond color in a 6-inch cell, red 6.6, yellow 29. *Chem. & Met. Engineering* 48, No. 9, 156 (1941).

Evaluating Filter Aids

Batch plate-and-frame filtration operations may be evaluated on a practical basis,—a valuable help in decreasing costs and increasing rates of production. The method involves setting up an inexpensive small filter press for experimental purposes. A widely used size of press for regular production is a 30-inch press of approximately 400 square feet of filtering surface. Tests runs for data on this equipment could be made successfully on a 12-inch filter press of corresponding construction, using 3 or 4 plates and about 5 square feet of filtering area. The small samples required for runs on the 12-inch press make it possible to obtain a large number of comparisons on one lot of material. Runs are made with the experimental press, varying only one factor at a time. In this way, selection of the best grade of filter aid for the particular material being filtered can be determined. By making step-wise increases in the pressure, the critical pressure can be determined above which filtration practically ceases. Data should be collected correlating the volume of filtrate with the increase in pressure and the time of filtration. Using such data, it is possible to gain maximum efficiency from the filter aid selected, and to solve many problems of liquids difficult to clarify. Richard S. Cogger and Harvey M. Merker. *Ind. Eng. Chem.* 33, 1233-7 (1941).

Sulfonic-acid Soap Analysis

The source and types of petroleum oil-soluble sulfonic acid soaps are discussed. Analytical methods for estimating oil-soluble soaps, or so-called "mahogany" soaps, are described. These soaps are very effective emulsifiers. F. M. Archibald and E. L. Baldeschwieler. *Ind. Eng. Chem.*, Anal. Ed. 13, 608-11 (1941).

Castor Oil Soap

Soap manufactured from dehydrated castor oil has the same quality as that prepared from natural unsaturated oils. G. I. Shuraev and M. Mikhailova. *Masloboino-Zhirovaya Prom.* 1940, No. 4, 26-7; through *Chem. Abs.*

Autoxidation in Fats

Studies were made on the autoxidation of fats under varying conditions. It was found that subjecting the fat to a reddish yellow artificial light had the same general effect as subjecting it to daylight, the former method having the advantage of definite control. The peroxide value reaches a characteristic maximum for an individual fat which is accompanied by a number of changes in the fat characteristics, including a marked increase in acid number, in saponification number, and in the appearance of polymerization phenomena, shown by a strong increase in viscosity.

With triolein, the acid number increased from the original value of 0.4 to 23.1 at the end of 1,500 hours, the saponification number increased from 187.5 to 218.1, and the iodine number decreased from 83.5 to 63.4 in the same period. Olive oil changed from an acid number of 0.6 to 24.5, a saponification number of 204.2 to 231.7, and an iodine number of 85.5 to 42.6. The maximum in peroxide value coincides with the iodine number reaching the same value as the thiocyanate number, which shows that no compounds with multiple double bonds are present at this stage.

Multiple unsaturated fatty acid glycerides added in small amounts to simple unsaturated glycerides, accelerate autoxidation. Fats kept in the dark show no change worthy of mention, confirming the fact that the presence of light is necessary for autoxidation and the development of a "tallowy" state. E. Glimm and E. Seeger. *Fette und Seifen* **48**, 322-6 (1941).

—— ♦ ——

Substitutes in Textile Work

At present the only oil of interest to the textile industry on the priorities list is castor oil, the basis of most sulfonated oils. Under normal conditions the oils and waxes used as such or in the form of soaps and detergents, are imported. However, the supply of domestic oils such as cottonseed, corn, etc. can be modified by hydrogenation to give oils and soaps of any desired characteristics. An excellent source of cheap raw materials for this purpose are the various fish oils. Once concern supplies these oils of any desired titer. Sulfur-containing compounds which occur as impurities in petroleum products can be oxidized to hexavalent sulfur compounds, giving products resembling the Gardinols in composition. Special potassium phosphates have been successfully substituted for olive oil in lubricating wool. These phosphates, in concentrated aqueous solution, give an oily liquid with no tendency to crystallize. When tried for oiling rayon, it was found that the tensile strength of the rayon was increased rather than decreased, a somewhat surprising result. Apparently the concentrated phosphate solution has a greater affinity for water than the rayon has, so that in effect the aqueous solution dries the fiber. A further advantage of these phosphate solutions is that the lubricant can be easily washed off with water. It thus appears that in the case of oils, soaps and detergents for textile work, a supply of suitable substitutes is available. A. R. Macormac. *Rayon Textile Mo.* **22**, 546-8 (1941).

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Soybean Oil

(*from Page* 23)

supplies of coconut oil as a result of conditions in the Pacific, there is the possibility that a larger tonnage of soybean oil might go into many soaps as a temporary substitute for coconut. This, naturally, would be only an emergency measure as soybean oil can hardly be classified as a substitute for coconut oil in hard soaps.

In this respect, it is interesting to note that in the war-time year of 1917, the American soap industry used 124 million pounds of soybean oil, a figure which has never since been approached. Shortly after that year, its use in soap disappeared almost completely. At the time of the first World War, virtually all soybean oil was imported. It is only in recent years that soybean has again begun to be used in any volume as a soap stock. The record of the year 1917 serves to indicate, however, that if conditions are right, the industry can take much larger quantities of the oil than it is taking at present. A repetition of what happened in 1917 does not seem to be in the offing as the current trend in soap making does not seem to favor the greatly increased use of "soft" oils. What is happening is that soybean oil, because of its price position in respect to competing oils, is replacing them to a degree. That is to say, the use of soybean oil appears to be gaining at the expense of the other "soft" oils.

It is probable that soybean foots and soybean fatty acids will continue to find ever increasing use in the soap industry and will become more important to the soap maker as the soybean processing industry expands. Crude acid oil, or acidulated foots, are generally priced about 3 cents a pound lower than crude soybean oil, while refined soybean fatty acid is priced about 1 to 1¼ cents higher than crude soybean oil. The crude acid oil is too black to use in making other than a settled soap but is said to be satisfactory in certain types of formulations in combination with other stocks. At this time of year, in the Fall, after the end of the soybean crop year, the price of the oil normally drops somewhat making it a more attractive buy.

The future of soybean oil as a soap stock naturally depends on a large number of factors. Foremost of these, of course, is price. There is no scarcity of the oil, and with larger supplies in the offing as contrasted with shorter supplies of many of the more important soap oils, its use in soaps is expected to be stimulated. Limitations are imposed on its use in soaps by the size of the market for soft soaps and the extent to which it can be used for blending with other soap stocks. Many soapers, however, have found that its use can be extended advantageously through judicious blending. At the present time, the wide use of soybean oil in the manufacture of hard settled soaps is out of the question.

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Floor Products • Polishes • Chemical Specialties

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SAVES MONEY AND HEADACHES

PYRIN saves money because 5% of PYRIN is equal to 7½% of Straight Pyrethrum Extract—which means you get a Grade AA spray at less cost than a Pyrethrum B Grade spray.

PYRIN saves headaches because it is unusually stable. PYRIN stored for years is clean, free from sediment, and as effective as when originally produced. The active ingredients of the Pyrethrum in PYRIN are protected from the usual polymerization which takes place in ordinary Pyrethrum sprays.

PYRIN keeps your spray free from "gookum," and *maintains its high killing power.*

PYRISCENTS

The first perfumes specifically compounded to protect your killing power.

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PYRETHRUM POWDERS
ROTENONE PRODUCTS

JOHN POWELL & CO., INC. *114 East 32nd Street, New York.*

MR. LEMONGRASS USER IS ALL SMILES AGAIN

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SATISFACTORY REPLACEMENT for Oil Lemongrass Native

*OIL LEMONGRASS SUBSTITUTE #619 MM&R

A Big Economy *Plus* for LEMONGRASS USERS

TO MEET a pressing need for a *satisfactory* replacement for the fast-dwindling supply of Oil Lemongrass and to enable users of this product to maintain their production cost schedules in the face of sky-rocketing prices of the natural product, the M M & R laboratories have produced, *by scientific manufacture*, a substitute which in tests and in actual usage has proved to be the *answer* to the Lemongrass problem.

In odor and characteristics, Oil Lemongrass Substitute No. 619 M M & R, closely approximates genuine Oil Lemongrass Native. It has *tremendous* covering power and is priced well below the normal price of Lemongrass Native. *This low cost* will do much to *balance* rising prices of other ingredients.

SEND for a testing sample and prices of Oil Lemongrass Substitute No. 619 M M & R *today*. Tests will prove that it is *ideal* for perfume and odor coverage in insecticides, disinfectants, sprays, polishes, laundry, toilet and liquid soaps.

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NOTE: If the odor of your product is of little trade importance, Oil Lemongrass Substitute No. 619 M M & R makes an ideal, low cost replacement for any higher priced perfume oil you may be using now. Investigate Today!

MAGNUS, MABEE & REYNARD, INC.

QUALITY ESSENTIAL OILS, BALSAMS AROMATIC CHEMICALS, ETC... SINCE 1895

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CHICAGO: 221 NORTH LASALLE STREET

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This remarkable photo of Mount Rainier makes you look twice to find out which is the mountain and which is the reflection.

The Peak of NATURAL Perfection

PRENTISS CLARIFIED PYRETHRUM EXTRACT #20

It's a natural!

At this time it is extremely important to note that, while the price of practically every other commodity has been increased during 1941, the cost of Pyrethrum has been reduced and indications point to a price stabilization at this new low figure. So, in a rising market, you can stabilize your material cost by using Prentiss Clarified Pyrethrum Concentrate No. 20 . . . guaranteed to contain 2.0 grams Pyrethrins per 100 c.c., shipped in 55 gallon drums.

Which is the mountain? — PYRETHRUM
Which is the reflection? — SYNTHETIC

R. J. PRENTISS & CO., INC. — THE WORLD IN BOTANICALS

R. J. PRENTISS & CO.

80 JOHN STREET, NEW YORK CITY

INSIDE NEWS

NOVEMBER PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1941

"Back Stage" with National's New Research Department

You are invited "Back Stage" of National's new Research Department. Since we realize you can't all visit our Laboratories personally, we are going to present certain problems which will give you an idea of how they are handled through Research.

The first consideration in the manufacture of a can, is the material from which it is made. The wrong type of plate may give rise to many problems. Therefore, let us consider one of these.

THE CAN ENDS:

At first thought, the can end may appear to be so simple that no problems could arise in either its manufacture or use. It is simple, if we only consider one of its functions; that of acting as part of the wall of a container. But the can end is not merely a static, rigid, wall, for it is also a pressure relieving diaphragm; distending under pressure and returning to its normal shape when the strain is relaxed. It is in this action that an end must successfully withstand some severe stresses. Therefore, the problem of determining the best possible combination of design and materials so that the optimum of performance can be attained arises. In addition, it must be solved within the economic limits of low selling cost.

The question is, how to select the best possible combination of materials and design? It's not determined by guess-work.

Every end needs material of the right kind which consists of tin plate. This must be the best available, which means Cold Reduced Plate of the proper gauge and temper.

Now, there are many sizes of ends, and it is simple to see that the same design, temper, and gauge of plate, cannot be used on all sizes from the smallest to the large gallon size.

The selection of the proper combination is not left to guess-work, or even practical experience. Research has devised tests which provide facts, and for the selection of the proper combination of design and material, the apparatus pictured at right has been devised. (21)

The operator merely places a can in the apparatus and applies steam pressure to the end. Watching the end for signs of breakdown as the pressure increases. When a definite pressure level has been reached the operator turns off the steam, releases the pressure and applies a vacuum. This is repeated at many different pressure levels until the characteristics of this end are thoroughly understood. This data, in combination with other correlated data enables him to select the proper combinations to give optimum end performance.

Crabmeat Industry To Expand Production

America's crabmeat canning industry is planning an expansion of production facilities. The industry is acting to take advantage of the market created in America by the new tariff on imported crabmeat, the tariff now being 22½ percent ad valorem as compared to 15 percent previously.

The industry feels that this additional protection will permit it to develop rapidly.

The largest supply of crabs available to American canners is found along the Gulf Coast and along the Atlantic Coast up to Long Island. However, canners in Maine are planning greatly increased outputs. During the past year these food companies confined their merchandising efforts on canned crabmeat to New England, but they now intend

BY
NATIONAL CAN

NOVEMBER PREPARED BY NATIONAL CAN CORPORATION, NEW YORK, N. Y. 1941

to go after the national market. One canner has increased the personnel in its plant from 20 to 135 workers in the last year, and 50 more have been employed to pick the crabmeat from the shells.

The American crabmeat industry in 1940 produced 775,671 lb. and it is estimated that the 1941 figure will be up to 1,000,000 lb. However, the industry feels that production must be stepped up to 6,000,000 lb. or more to capture the new market in America. The raw supply of this increase is available, the capital can be obtained and technical knowledge has been developed so that the desired increase in volume is quite within the realms of possibility.

Formerly nearly all the canned crabmeat used in this country came from Japan, Russia and California. (22)

New Wax Source

Green cotton, said to yield 30 times as much wax as the ordinary white varieties, gives promise of becoming an important source of wax for polishes. Manufacturers of furniture polishes, floor polishes, auto polishes and similar protective finishes requiring a wax with a high melting point would benefit chiefly from the use of the new material, especially in case of an acute shortage of wax from the usual sources. Southern cotton farmers would find an always welcome new market for their crop. (23)

New Food Plant Bacteria Test

Need for a rapid and reliable method for determining the bacterial contamination on flat surfaces in food plants, has led the New York State Agricultural Experiment Station at Geneva, to devise a simple procedure for this purpose.

The method is called the "contact plate" method and is said to require a minimum of time and equipment and to be more practical for field use than any other method available.

Briefly, the contact plate method consists of allowing a layer of agar to harden on a sterilized tin disk resting in a sterilized Petri dish. When ready for use, the tin disk with its agar coating may be removed from the Petri dish with the aid of a small suction cup, the sterile agar brought into contact with the surface to be examined, the contact plate then replaced in the Petri dish and incubated at 32 deg. C for 24 to 48 hours, depending upon the type and number of bacterial colonies which develop.

Not only has the method proved useful in routine sanitary inspection work, but it is also serving as a valuable means for comparing different procedures for sterilizing food dispensing and food processing utensils. (24)

Shark Oil . . . A Vitamin Source

Sharks are generally considered predatory and useless denizens of the sea but scientists declare they are a boon to humanity. Recently Governor Olson, of California, signed a measure designed to protect this fish in California waters, vitamin A being the answer. For about five years the California Packing Corporation has been making a study of the shark and its habits. Little has been learned of its habits, but it has been found that shark liver oil is one of the best sources of vitamin A. Shark liver carries far more unit potency of vitamin A than does the better known cod liver or halibut liver. The latter two produce fractional units of a gram, while the liver of the shark has a potency of from 10 to 20 units. Soupfin shark liver has zoomed to new heights in price in Pacific Coast fishing centers and quite a few boats are out after sharks instead of food fish. At Astoria, Ore. soupfin shark liver is now quoted at $17,000 a ton, or more than the price of bar silver. (25)

A green copper paint was recently introduced by a large American copper producer to supplement its regular copper paint, which has been on the market for some time. (33)

Baltimore plant of
The National Can Corporation

Technical Topics

A RESEARCH LABORATORY has reported an improved method of taking the yellow plant color, particularly carotene, out of white flour by using chlorine dioxide, a new gas to be used for flour bleaching; nitrogen trichloride aided by benzoyl peroxide is the commonly used gas. (26)

A U. S. PATENT has recently been procured covering the mechanical bunching of just enough stalks of asparagus to be mechanically inserted into a can without damage to tips; butts are cut off after bunch has been formed. (27)

EDIBLE OIL AND RICE FLOUR heated with addition of water may be used as a plasticising agent in cheese processing according to a recent patent. (28)

BIOTIN (VITAMIN H) essential to plant and animal life and found in potatoes, potato starches, milk, liver, yeast and egg yolks, has been isolated and is now under study for synthesizing by research workers according to a recent report. (29)

WILD ROSEHIPS and other hedgerow products are being suggested as a valuable source of vitamin C in Britain. It is intended to encourage their use during the coming autumn. (30)

CHLORINATION of channel blacks at elevated temperatures, so that the resulting material contains from 5 to 20 percent of chlorine is claimed to result in a product giving improved physical properties to rubber in which it is incorporated. Higher tensile strength, greater resistance to abrasion, and less development of heat on flexing are among the improvements said to result. (31)

SHELLAC modified with formaldehyde, urea, melamine, and similar materials, can be worked by the usual hot plastic molding technique, it has been shown in recent investigations by the Indian Lac Research Institute. It has also been found that shellac modified with formaldehyde and guanidine carbonate, and filled with jute waste can be injection molded. The heat resistance of the modified shellac molded articles is stated to be about 90°C. By gradual after-baking the resistance can be raised to 120°C. and more, it is added. (32)

For further information on any of these articles write to National Can Corp., 110 E. 42nd Street, New York City.

(Advertisement)

THERE'S A REASON

● There's a reason why the housewife will prefer one insecticide to another. Both kill effectively, yet one is more pleasant to use, nicer in the home. This is the job that proper, scientific perfuming can do, perfuming that unobtrusively covers the obnoxious kerosene odor but leaves no perfumy pall.

Send us a gallon of your unperfumed spray and let us submit our suggestions.

VAN AMERINGEN-HAEBLER, INC.
315 Fourth Avenue, New York City

FROM THE ORIGINAL, PAINTED ESPECIALLY FOR NIAGARA ALKALI COMPANY BY JOHN ATHERTON

FROM THE POINT where two branch railroads meet to form a main line the roadbed usually runs in a straighter course, traffic moves faster and in greater volume, and the route leads to larger centers of service. At such a point are the business courses of Niagara Alkali Company and Electro Bleaching Gas Company. Affiliates for many years, they are now united in one organization to give smoother and more thoroughly efficient service to the customers whose requirements they each met so satisfactorily as separate organizations. Compact, strong, closely knit in manufacturing, research and personnel resources, this one company now operates under the name of NIAGARA ALKALI COMPANY.

EBG Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK, N. Y.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
Liquid Chlorine

TAR ACIDS

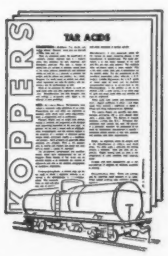
Cresol · Cresylic Acid

TAR ACID OILS

CRESOL—U.S.P. with a very close cut distillation range and light color, for pharmaceutical purposes —Meta-Para Cresol with high meta cresol content —Resin Cresols close cut to wide boiling with guaranteed meta cresol contents.

CRESYLIC ACID—Many distillation ranges appropriate for all established uses—pale color—clean odor—total impurities besides water not exceeding one-half of one per cent.

TAR ACID OILS—Frozen crystal free at O°C.—good emulsion forming properties—low benzophenol content—appropriate for low to high coefficiencies with tar acid contents as required.



Technical data sheets on "Tar Acids" and "Tar Acid Oils" are available on request. Write for your copies.

OTHER KOPPERS PRODUCTS: Shingle Stain Oil . . . Refined Tars . . . Pitch Coke . . . Industrial Coal Tar Pitches . . . Flotation Oils . . . Creosote . . . Removal and Recovery Systems . . . Coal Tar Roofing Materials . . . Waterproofing and Dampproofing Materials . . . Tarmac Road Tar Materials . . . Bituminous-base Paints . . . Coal . . . Coke . . . Fast's Self-aligning Couplings . . . Piston Rings . . . Pressure-treated Lumber.

Send for the Koppers Booklet describing "Chemicals from Coal"

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DISINFECTANTS
DEODORANTS
INSECTICIDES

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REFINED NAPHTHALENE

Crushed, Crystals, Powder, Lump, Chips, Flakes. For use in manufacture of deodorizing blocks, moth preventives and other insecticides. Also Naphthalene in Balls, Blocks, Tablets.

COAL TAR DISINFECTANTS
Coefficients 2 to 20, F.D.A. Method

CRESOL AND
CRESYLIC DISINFECTANTS

PINE OIL DISINFECTANTS

PINE OIL DEODORANTS

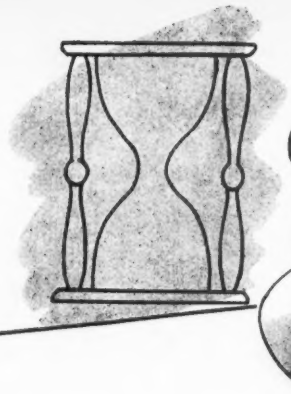
CRYSTAL AND BLOCK DEODORANTS

LIQUID INSECTICIDES

DEODORIZING BLOCKS

Pressed Naphthalene or Paradichlorobenzene. Various sizes and shapes. Perfumed and plain. Bulk industrial packages, retail packages.

THE WHITE TAR COMPANY
OF NEW JERSEY, INC.
KEARNY, N. J.



1918

Read This Letter from a Great Sales Manager to One of His Men

Dear Joe:

Your letter of April 19th came in yesterday's mail. I've waited until today to reply because I wanted time to do some thinking. I want to answer the questions you ask. But more than that, I want you to understand the reasons for the things that are happening in our business today.

You have asked me four important questions:

1. How soon can your customers expect delivery on certain orders they have placed?

2. Why should you call on customers when you haven't any product to sell?

3. What are you going to say to these customers?

4. Why do we continue to advertise when we can't deliver the goods?

First of all, let's take a look at the situation as a whole. Right now this country is facing a great national emergency. As you know, the Government is spending huge sums of money for war materials. This money is making more jobs for more people. And when people have more money, they do more spending. Business as a whole is better now than it has been for years. This is a period of prosperity.

★

For the first time in the history of our business, we are in a position where we can't manufacture and deliver our products as fast as people buy them. We are oversold. And I'll tell you why we haven't been able to turn out goods as fast as we'd like to. Certain raw materials that go into our products are needed for the manufacture of defense supplies. And the companies that are working on war orders are buying these materials in great quantities. The supply just doesn't meet the demand.

Another thing that has slowed us up is lack of manpower. Labor is hard to get. Men are wanted for defense industries. Many are going into the army. So, from a standpoint of producing the goods, we've had plenty of problems. We're working day and night to solve these problems, but it takes time and patience. Believe me, we're as anxious to deliver as you are to sell. In a few more weeks we hope to be caught up. In the meantime, you must understand and be certain that that your customers understand that we're doing our very best.

Now why should you keep calling on your dealers when you haven't any product to sell? Here's why. Because you have a product to sell. That product is this company, its name and its reputation.

And right now, when you can't promise delivery, it's the most important product in the world. Why? Because this national emergency is only temporary. Some day—a year, two years, three years from now—normal times will return. People will go on living, thinking, and acting as they did before. Yes, and they'll go on buying, too, and we want them to go on buying our product then as they do now. So your job is bigger now than it has ever been.

You must keep this company and its products everlastingly in the minds of your buyers. That means contacts and more contacts, whether you can promise delivery or not. You have a new sales story to tell. It's the story of this company, what it stands for, and what it is trying to do. Be certain that you get this story across clearly to your dealers. It's your sales insurance for future business.

★

Now about our advertising. Why advertise when we can't deliver? For the best reason in the world. Because this company is in business to stay. I say again that this national emergency is only temporary. But what's going to happen when it's over? People still will have definite needs for the products we make. Do you want these millions of buyers to forget us and our line? If they do, we'll all be out of jobs.

Advertising is more important right now than ever before. It has a bigger job to do because it must keep people sold on our products, even though they can't buy them. We're not only going to continue our advertising—we're going to do even more. It's another form of business insurance.

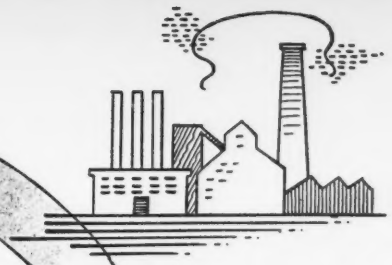
You keep your dealers sold. Our advertising keeps our customers sold. Sales and advertising must and will work together for the future prosperity of this company and its employes.

You will hear about companies whose salesmen have ceased to make their regular calls. These same companies have stopped advertising. Our policy is different. We believe that in the long run we will prosper while they will fail.

Keep all of these things in mind. Remember, you're selling for the future as well as for right now. And don't pay too much attention to this "depression after the boom" talk. If you do your job as we intend to do ours, there'll be no depression for us.

Sincerely yours,

The foregoing letter was forwarded to SM by a reader who did not identify the author. A footnote at the bottom of the letter reads, "The letter was written by one of the greatest sales managers we have ever known. It was dated April 21, 1918."



1941

...History Repeats!

...Why should you call on customers when you haven't any products to sell?

Why should you continue to advertise when you can't deliver the goods?

Read the letter on the opposite page. If you agree with this sales manager---then you'll realize that such speculation has given way to conviction for many of America's leading manufacturers today who faced this problem in 1918. They survived and prospered...because they *"Kept their products and their identity everlastingly in the minds of their customers."*

SOLVAY

TRADE MARK REG. U. S. PAT. OFF.

CAUSTIC POTASH LIQUOR

Please address all inquiries to your nearest Branch Sales Office listed below:

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 RECTOR STREET — NEW YORK, N. Y.

BRANCH SALES OFFICES:

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1101 Hibernia Building	New Orleans, La.
40 Rector Street	New York, N. Y.
12 South 12th Street	Philadelphia, Pa.
1107 Gulf Building	Pittsburgh, Pa.
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60th ANNIVERSARY 1881 • 1941

YOU WILL FIND that with DHS Activator* you can make more active sprays and insecticides from many toxic combinations.

HERE ARE SOME OF THE REASONS:

1. Increases knockdown and kill of liquid sprays.**
2. Odor — pleasant, non-irritating, brings repeat orders.
3. Stable — promotes retention of toxicity and clear dilution in storage.
4. Increases effectiveness against crawling insects.
5. Non-toxic, as used, to warm-blooded animals.
6. Miscible with all ingredients used in liquid insecticides and sprays.

Results of extensive research on various grades of sprays made from many combinations of toxic ingredients are yours for the asking.

* Reg. U. S. Pat. Off.

** Jour. Econ. Ent., Vol. 34; P. 195-197. *Write for reprint.*

QQ-91

BRANCH OFFICES: CHICAGO • NEW YORK • ST. LOUIS • SALT LAKE CITY • SAN FRANCISCO

SANITARY PRODUCTS

Official Publication, Nat'l. Assn. of Insecticide & Disinfectant Manufacturers

FROM a large industrial buyer of pyrethrum powder has come a complaint against the "sub-standard" material now being supplied. Although orders as in previous years specify that the powder must contain not less than 0.9 per cent pyrethrins, the labels on the package state that the pyrethrin content is only 0.5 per cent. Thus goes the complaint.

Certainly, we all know the answer, but try to think up one in a hurry which you can tell to a buyer for a large railroad who knows nothing about pyrethrum or Department of Agriculture regulations, and is merely ordering what he was told to order, and who very definitely intends to see that he gets it,—or else. Try to tell him in a few short sentences why the label states, "Active Ingredients, Pyrethrins, 0.5 Per Cent." One supplier did and gave up. He finally, however, convinced the buyer that he was not bent on putting over a fast one and agreed to attach a sticker on the side of each package stating: "We guarantee that this Pyrethrum Powder when shipped from our factory contained 0.9 per cent or more pyrethrins."

A REPORT of definite evidence that flies carry the virus of infantile paralysis was submitted at the recent convention of the American Public Health Association at Atlantic City. News stories of this report went out over all the leading wire services and were probably carried in about every newspaper in the nation. All this goes to emphasize once more the deadly disease carrying habits of insects, not only flies, but all insects, and it likewise focuses attention on the important place of insecticides in controling these insects.

OPINIONS on household insecticide prices,—that is the small package business,—for the 1942 season are somewhat divided if we may judge by the announcements of a number of both large and small manufacturers thus far. Although two leading producers of household fly sprays have stated that they are sitting tight on their prices for 1942 and are making no advance over 1941 figures, several others have since stated that their 1942 prices will be higher regardless of what the balance of the industry does. These latter state that in spite of no higher raw material costs, advances in other expenses such as wages, taxes, containers, equipment, etc., are sufficient reason for advancing 1942 prices.

We feel that those who are advancing prices for 1942 are justified. To begin with, business costs of all sorts are certain to show a sharp increase during 1942. In the second place, the manufacture and sale of household insecticides has not been exactly a lucrative business over the past ten years. And just where will a further increase in volume at no profit get us?

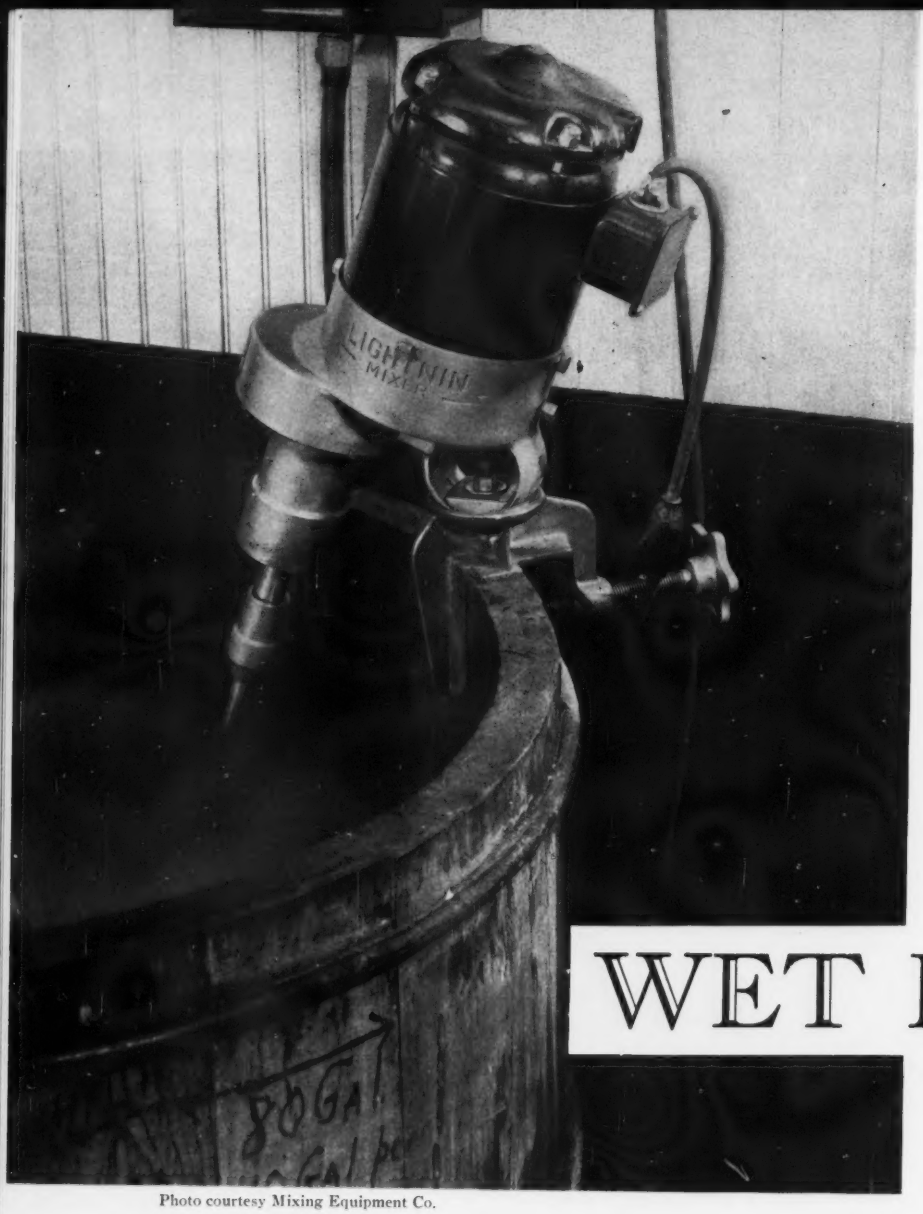

Photo courtesy Mixing Equipment Co.

WET MIXING

By
RALPH H. AUCH

THIS discussion of mixing must of necessity be comprehensive rather than intensive if it is even to begin to cover the various products prepared and marketed by the various readers of *Soap & Sanitary Chemicals*. The modus operandi for extracting pyrethrum flowers for insect spray, the manufacture of shaving cream, the preparation of a suitable granulation for subsequent compression into laundry bleaching tablets and the preparation of a smooth pigment mix for white shoe dressing for example, are certainly strikingly different.

The various types of equipment available for mixing liquids, creams and pastes offer a wide and sometimes confusing choice. Likewise, the range of capacity is quite wide, from the 2½ gallon hand operated emulsifier or whisk and change-can type up to the massive kneading type of about 2500 gallon working capacity in which the tilting mechanism for discharging the batch is electrically or even hydraulically actuated. Judging from the number of installations that are replaced for reasons other than obsolescence or to secure larger capacity, then the greatest care should be exercised in making the final choice for the work at hand.

Any mixing unit is merely a mixing element fitted into a container. Its efficiency is dependent upon the design of the moving mixing blades with relation to the size and shape of the container. In operation, there is a local zone of intense mixing, with an outer zone where the materials are being caused to flow toward this local zone.

The simplest form of paddle type mixer is the so-called straight arm in which the arms are mounted on a central shaft with or without stationary baffles to break up the layers and reduce any tendency to stratify.

A modification is the "push-pull" type of portable mixer in which the pitch of the lower propeller is reversed to that of the up-

per. Thus a pull up from the bottom of the tank is developed to force heavier ingredients upward and also meet the downward flow created by the upper blades. These opposing streams materially increase the turbulence of the liquid and soluble ingredients may be added directly to the batch instead of having first to dissolve them.

For large capacity tanks, the use of propellers on a shaft revolving at high speed is limited by the practical length of the shaft. For very large tanks of light liquids the propeller then may well be introduced from the side. The only disadvantage, of course, is keeping a stuffing box tight under considerable hydrostatic head.

The paddle type mixer, suitably steam jacketed, has been successfully used for diverse purposes from making liquid soaps, shampoos, and upholstery cleaner to mixing waterless soaps, silver creams and paste hand soaps. The portable type has given satisfaction in the preparation of such dissimilar products as glass cleaner, liquid face powder with suspended solids and after shave lotion. A word of caution is in order on highly alcoholic solutions such as special astringents and after-shave lotions, namely, the motor and all electrical connections should be explosion proof. The wanton disregard for this is astounding.

The horseshoe type is a modification utilized where heat transfer is an important consideration. The container is hemispherical, fitted with a steam jacket, and with or without a cylindrical section above to increase the capacity or provide added space for any foaming tendency of the batch prepared therein. The mixing element should fit closely to the container wall to keep it clean and effect good heat transfer. Most neutral shoe cream is made in this type mixer, as are ironing tablets preparatory to casting. Also much "no-rub" liquid floor wax is prepared in this type with a smaller second mixer mounted at a higher level to make up the shellac portion separately, for example.

The change can type mixer finds application for making all manner of pastes as well as creams. The mixing blades stand in the tub vertically so a minimum of air is worked or beaten into the batch. It is very flexible, in that only one driving mechanism is necessary for many

Photo courtesy J. H. Day Co.

tubs or change cans. If volume of product warrants, a mixer can be kept in practically constant operation throughout the working day with an adequate complement of tubs.

This type also virtually eliminates transferring, for while a batch is mixing in one tub, the raw materials can be weighed up into another; others can be cooling, even aging or "curing" their contents in the case of shaving cream; still others delivering their contents to a mill or receiving it at the discharge side of the mill for return to the mixer or dumping its contents into the filling machine hopper. For the larger sizes, a wheeled truck or so called buggy is available to facilitate moving the tubs from place to place and in and out of the mixer proper, making handling up to 100 gallon capacity tubs a one man job.

It is to be remembered that efficient mixing design must consider at least four points, namely, the conveyance of the materials to the mixer, the intense local mixing action, the general flow of materials in the container and finally the conveyance of the finished mix from the mixer. In the case of liquids, particularly when no solids are dissolved or suspended therein, the first and last points are simply solved, of course, but with paste and creams these points are worthy of serious consideration. In fact on occasion, we have mounted the mixer from the ceiling so solid ingredients could be dumped directly into the batch from the floor above, and again on a platform or on a mezzanine so that discharge could be direct to the hopper of the filler on the main floor.

The simplest form of change can mixer called a pony mixer is that in which the can rotates in one direction and three or four mixing blades standing vertically in the batch rotate in the opposite direction on an axis off center from the can. A fixed scraper blade constantly works the material away from the wall of the rotating can into the path of the blades.

In the smaller capacities the blades tilt out, while on the larger machines the counterweighted blades are raised out of the way by means of a hand wheel operating a pinion on a rack. A new type tilts out even in the large capacities and is gearless, being driven by a silent chain. The usual sizes, aside from the one quart and up laboratory mixers, are from 2½ to 150 gallons.

One modification of these mixers has mixing blades or a whisk mounted off center in the stationary container the bottom of which is hemispherical instead of flat. The agitator revolves around the center of the container and an intensified local mixing zone is brought to every part of the container. Intermixing is accomplished by the progress of the mixing element in cycloidal paths.

Another modification in the larger capacities is the double motion or so-called "Brighton" which finds wide application. The tub does not rotate, so can be fitted with lugs to facilitate handling by means of a crane or a special truck or buggy. It may also carry a side opening to couple by flexible metal or neoprene hose, for example, to a glycerin tank for tooth paste or a stearic acid or wax melting kettle set at higher level for greaseless and shaving cream or cold and beauty cream, respectively. The heated or molten ingredients can thereby be run in in a thin stream while the mixer is in motion.

It is equipped with two sets of agitator blades which revolve by gears with a planetary motion, i.e., the blades revolve on their own axis and also around the tub at the same time.

(*Turn to Page* 107)

Variation in Peet-Grady Tests

*Study of effects of using reduced dosage and reduced time exposure in the Peet-Grady Test**

By Dr. JARED H. FORD

THIS study has been undertaken in order to determine what effect a reduction in the dosage, a reduction in the exposure time, or both, would have on results of insecticide bio-assays as conducted by the Peet-Grady Method.[1] Since the exposure time of 10 minutes and the dosage of 12 ml. for a 6'x6'x6' test chamber (1.88 fluid ounces per 1,000 cubic feet) that are used in the official Peet-Grady method both represent conditions from which there may be wide departures in the actual usage of the products, a cooperative study was undertaken to determine the effects of these variables.†

If a housewife wished to use a hand sprayer to disperse insecticide into a 10'x13' room with a ceiling 8' high, she would have to possess considerably more patience and a stronger right arm than do most people in order to atomize the 2 fluid ounces of insecticide that would be required to equal the dosage employed in the official Peet-Grady method. However, if she should have one of the newer types of vacuum cleaners with an attachment for spraying and the necessary patience for assembling it, she could very rapidly disperse the 2 ounces of fly spray throughout the room. The present official Peet-Grady dosage is easily obtained by anyone using an electric sprayer designed for the purpose.

The 10-minute exposure time is also a condition not always realized under actual conditions of use. Most people have to be badly disturbed by the flies to take the trouble to close all the doors and windows of a room and leave them closed for 10 minutes. Furthermore, in many applications such as the use on porches and in dairy barns it is practically impossible to close up the space tightly.

The tests were carried out with two finished sprays, one containing 150 mg./100 ml. pyrethrins (equivalent to 7.5 per cent pyrethrum 20:1 concentrate), and the other 55 mg./100 ml. pyrethrins plus 50 mg./100 ml. c.p. rotenone‡, both in a deodorized kerosene base. The solutions were prepared by the committee chairman and sent in pint

TABLE 1
KNOCKDOWN
(12 ml. Dosage)

Laboratory	150 *mg. Pyrethrins*		*O.T.I.*		55 *mg. Pyrethrins* +50 *mg. Rotenone*‡	
	Per cent Knockdown 5 *Min.*	10 *Min.*	*Per cent Knockdown* 5 *Min.*	10 *Min.*	*Per cent Knockdown* 5 *Min.*	10 *Min.*
			Small Group Method			
1	97	100	—	—	97	96.5
2	90.8	94.9	87.3	93.4	86.9	92.5
3	89	95.6	85	93	85	91
4	97	100	97	99	97	99
4	99	99	98	100	98	99
5	97	100	—	—	96	96
6	96	99	97	99		
			93	98	83	97
7	98.8	98.9	96.6	97.7	92.9	96.2
Av. (Small Group Method)	95.6	98.4	93.4	97.1	92.0	96.3
			Large Group Method			
10	99	99	99	99	98	99
11	97	98	94	91	92	94
12	99.7	99.8	99.1	99.4	98.7	99.3
13	99.8	99.9	—	99.7	99.2	99.6
14	96.9	97.9	94.0	98.2	98.9	96.2
Av. (Large Group Method)	98.5	98.9	96.5	97.5	95.6	97.6
Av. (Both Methods)	96.7	98.6	94.5	97.3	93.4	96.8

* Report of a cooperative study carried out by members of the Natl. Assn. of Insecticide & Disinfectant Mfrs. under the auspices of the Insecticide Scientific Committee of which A. Edison Badertscher is chairman. (Dr. Ford's present address is care of The Upjohn Co., Kalamazoo, Mich.)

[1] Original method described by Peet and Grady. *J. Econ. Entom. 21,* 612-7 (1928). For up-to-date revisions of the method, see 1941 *Soap Blue Book,* published by MacNair-Dorland Co.

† Laboratory No. 4 reports: According to our tests in different room sizes that the dosage required in larger rooms decreases considerably per cubic foot over the smaller Peet-Grady room. In our test work we use the Peet-Grady room and also a larger room which has something over 600 cubic feet of space. On the basis of our results, it requires about .55 c.c. per cubic foot in the Peet-Grady room to give us the same results that we obtain in the larger room with .44 c.c. per cubic foot. This amount goes down even further in larger size rooms, apparently due to the decrease in actual square footage of wall surface in relation to the amount of cubic feet of space involved. This may be due to wall absorption of the spray materials which runs much higher in the smaller rooms.

‡ The rotenone was held in solution by means of a cosolvent, 2-(para tertiary-butylphenoxy)-ethanol. This compound has the following structure: $(CH_3)_3C—C_6H_4—OCH_2CH_2OH$. Since certain other mono-ethers of ethylene glycol are commonly known as "Cellosolves," this compound may be considered to be para tertiary-butylphenyl "Cellosolve." The finished insecticide contained 2% of this cosolvent by volume.

cans to all members of the Insecticide Scientific Committee having facilities for Peet-Grady testing.

The straight pyrethrum and the pyrethrum-rotenone combination both represent types of insecticides that are widely used at the present time. Although rotenone-containing derris extractives are used more widely than c.p. rotenone by reason of economy, they contain several toxic principles in addition to the rotenone and cannot be evaluated accurately by chemical methods. Rotenone, on the other hand, is readily available as a chemically pure substance.

The tests were carried out in two groups. The first sets of samples were sent out September 17, 1940, with instructions that they be tested in comparison with the O.T.I., using both 5- and 10-minute exposures. The following laboratories participated in this first series of tests:

Gulf Research and Development Co.
Illinois Chemical Laboratories.
Kilgore Development Corp.
McCormick & Co.
Midway Chemical Co.
John Powell & Co.
Rohm & Haas Co.
Shell Oil Co.
Sinclair Refining Co.
Stanco, Incorporated.
U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine.
J. R. Watkins Co.

On February 12, 1941, new samples having the same composition as those used in the first series of tests were sent out with instructions that they also be tested in comparison with the O.T.I., using both 5- and 10-minute exposures as with the first set but employing a 6 ml. dosage instead of the official 12 ml. dosage that was used in the first series. The following laboratories participated in the second series of tests:

Dow Chemical Co.
Kilgore Development Corp.
Lederer Bacteriological Labs.
McCormick & Co.
Midway Chemical Co.
John Powell & Co.
Rohm & Haas Co.
Shell Oil Co.
Sinclair Refining Co.
Stanco, Incorporated.
U. S. Department of Agriculture, Bureau of Entomology and Plant Quarantine.

A third sample containing 2 per cent of the rotenone cosolvent 2-(para tertiary-butylphenoxy)-ethanol in deodorized kerosene was also sent out, but no specific data were requested. Only three laboratories reported results on this sample.

The data obtained in the first series of tests, in which the standard 12 ml. dosage was used, are summarized in tables 1 and 2. Table 1 gives the knockdowns and table 2, the kills. The division was made in order to render the tables less cumbersome. The knockdowns and kills obtained by any laboratory may be compared since the numbers in the left hand column represent the same laboratories in all tables. Tables 3 and 4 give the knockdowns and kills respec-

TABLE 2
KILL
(12 ml. Dosage)

Lab.	*150 mg. Pyrethrins*				*O.T.I.*			*55 mg. Pyrethrins +50 mg. Rotenone*				
	5-Minute Exposure		*10-Minute Exposure*		*% Kill 24 Hours*			*5-Minute Exposure*			*10-Minute Exposure*	
	% Kill 24 hr.	*Rating*	*% Kill 24 hr.*	*Rating*	*5 min. Exp.*	*10 min. Exp.*	*% Kill 24 hr.*	*% Mor. 24 hr.*	*Rating*	*% Kill 24 hr.*	*% Mor. 24 hr.*	*Rating*
					Small Group Method							
1	57	+14	58	+15	43	43						
					49	49	58	17	+ 9	59.5	26.0	+10.5
2	64.1	+14.4	61.4	+18.6	49.7	42.8	69.4	4.5	+19.7	64.8	8.7	+22.0
3	48.4	+15.0	53.4	+18.0	33.4	35.4						
					32.6	36.5	55.2	3.6	+22.6	58.7	4.9	+22.2
4	57	+17	46	+14	40	32	65	11	+25	51	14	+19
4	69	+16	72	+23	53	49	72	10	+19	67	14	+18
5	—	+12	—	+15	—	—	—	—	+18	—	—	+20
6*	47	+12	53	+19	35	34						
					43	40	44	15.6	+ 1	66.0	10.8	+26
7	70	+18	72	+21	52	51	75	2.7	+23	80	3	+29
Av. (Small Group Method)												
	60.9	+15.1	60.5	+17.8	44.1	42.3	65.3	8.1	+19.5	63.4	13.4	+20.1
					Large Group Method							
10	64	+21	59	+14	43	45	55	14	+12	55	17	+10
11	56	+11	55	+19	45	36	58	18†	+13	59	16†	+23
12	58.4	+14.3	66.1	+20.2	44.1	45.9	66.3	9.6	+22.2	72.9	6.1	+27.0
13	51.5	—	52.4	+18.8	—	33.6‡	64.0	10	—	61.4	11	+27.8
14	67.3	+15.2	68.2	+11.7	52.1	56.5	68.9	17.0	+16.8	72.6	21.1	+16.1
Av. (Large Group Method)												
	59.4	+15.4	60.1	+16.7	46.0	45.8	62.4	13.7	+16.0	64.2	12.2	+20.8
Av. (Both Methods)												
	60.2	+15.2	60.3	+17.4	44.7	43.5	64.0	10.7	+18.2	63.7	12.9	+20.4

* Results of laboratory 6 not included in averages. For explanation see text.
† Difference between 24- and 48-hour per cent kill used in place of per cent moribund.
‡ Not included in average as it would have disturbed the comparison between 5- and 10-minute exposures.

TABLE 3
KNOCKDOWN
(6 ml. Dosage)

Labs.	150 mg. Pyrethrins O.T.I.		55 mg. Pyrethrins +50 mg. Rotenone	
	Per cent Knockdown		Per cent Knockdown	
	5 Min.	10 Min.	5 Min.	10 Min.
	Small Group Method			
2	75.5	85.4	56.7	65.6
2	83.4	83.5	—	—
4	86 (82)†	89	76 (78)†	87
5	94	96	86	93
6	95	99	87	91
7	94 (92)	95	89 (89)	93
8	90.2 (88.3)	100	80.2 (78.6)	86.8
Av. (Small Group Method)	88.3	92.6	79.1	86.1
	Large Group Method			
10	84 (88)	90	68 (62)	69
11	67	77	38	60
12	88.6	96.7	73.8	82.5
13	97.6 (96.2)	98.4	91.7 (88)	95.4
15	91.7 (93.3)	98.4	78.8 (80.3)	92.2
Av. (Large Group Method)	85.8	92.1	70.1	79.8
Av. (Both Methods)	87.3	92.4	75.0	83.2

Labs.	150 mg. Pyrethrins O.T.I.		55 mg. Pyrethrins +50 mg. Rotenone	
	Per cent Knockdown		Per cent Knockdown	
	5 Min.	10 Min.	5 Min.	10 Min.
	Small Group Method			
2	69.0	77.1	56.7	65.6
2	79.2	76.3	—	—
4	82 (80)†	91	76 (78)†	87
5	87	92	86	93
6	—	—	87	91
7	92 (88)	92	89 (89)	93
8	82.7 (81.8)	89.5	80.2 (78.6)	86.8
Av. (Small Group Method)	82.0	86.3	79.1	86.1
	Large Group Method			
10	74 (75)	80	68 (62)	69
11	46	63	38	60
12	84.5	89.2	73.8	82.5
13	95.0 (93.4)	97.4	91.7 (88)	95.4
15	87.1 (81.4)	95.7	78.8 (80.3)	92.2
Av. (Large Group Method)	75.5	85.1	70.1	79.8
Av. (Both Methods)	79.0	85.7	75.0	83.2

† Figures in parentheses indicate per cent knockdown in 5 minutes as determined during the 10-minute exposure period.

tively for the second series of tests in which the 6 ml. dosage was employed. In all four tables the results of laboratories using the newer large group method[2] have been tabulated separately from those using the older small group method. The separate tabulations enable one to compare the average results obtained by the two methods.

Laboratories using the small group method were requested to make the usual 10 tests with groups of approximately 100 flies per test for each sample. Those using the large group method were requested to make four tests with groups of approximately 500 flies per test. Although the laboratories reported the total number of flies used in testing each sample, these data were omitted since in most cases the laboratories used approximately the numbers that were requested. A few laboratories based their results on considerably greater numbers of flies than were requested, but even though their results are probably more significant than the others, no attempt was made to give them additional weight in the averages. However, the results of Laboratory No. 6 were based on as few as 340 flies per sample and in some instances deviated so widely from the average of results obtained by other laboratories that it was believed advisable not to include its results in calculating the average kills.

[2] Simanton and Miller. *Soap, 14,* No. 4, 115 (1938).

TABLE 4
KILL
(6 ml. Dosage)

Lab.	150 mg. Pyrethrins O.T.I.						55 mg. Pyrethrins +50 mg. Rotenone					
	5-Minute Exposure		10-Minute Exposure		% Kill 24 Hours		5-Minute Exposure			10-Minute Exposure		
	% Kill 24 hr.	Rating	% Kill 24 hr.	Rating	5 min. Exp.	10 min. Exp.	% Kill 24 hr.	% Mor. 24 hr.	Rating	% Kill 24 hr.	% Mor. 24 hr.	Rating
					Small Group Method							
2	19.7	+ 7.1	18.0	+ 5.4	12.6	12.6	21.4	5.6	+ 8.8	19.6	5.5	+ 7.0
2	24.1	+ 7.2	20.3	+ 9.1	16.9	11.2						
4	40	+ 3	39	+ 7	37	32	37	3	0	41	5	+ 9
5	67	+18	69	+15	49	54	60	—	+11	66	—	+12
6*	31	— 2	30	+ 2	33	28						
					38	43	49	4	+11	56	5	+13
7	53	+13	58	+19	40	39	60	5.5	+20	64	3.6	+25
8	53.6	+14.3	55.8	+13.2	39.3	42.6	54.6	—	+15.3	58.3	—	+15.7
Av. (Small Group Method)	42.9	+10.4	43.3	+11.8	32.5	31.9	46.6	4.7	+11.0	49.8	4.7	+13.7
					Large Group Method							
10	25	+14	22	+13	11	9	23	9	+12	23	9	+14
11	33	+11	36	+18	22	18	29	3.6	+ 7	33	8.5	+15
12	37.6	+13.2	37.1	+ 8.9	24.4	28.2	35.1	5.3	+10.7	39.1	8.4	+10.9
13	39	+18	37	+16	21	21	43	6.4	+22	49	6.1	+28
15	46.6	+23.9	57.9	+26.6	22.7	31.3	34.6	10.9	+11.9	48.3	9.4	+17.0
Av. (Large Group Method)	36.2	+16.0	38.0	+16.5	20.2	21.5	32.9	7.0	+12.7	38.5	8.3	+17.0
Av. (Both Methods)	39.9	+13.0	40.9	+13.7	26.9	27.2	39.8	6.2	+11.9	44.1	6.7	+15.3

* Results of laboratory 6 not included in averages. For explanation see text.

Since a number of the laboratories did not report all the data that were requested, the determination of average values presented certain difficulties. For example, in table 2 Laboratory No. 5 reported ratings on the samples but no actual per cent kills and Laboratories No. 1 and No. 3 did not test the two samples in comparison with the same O.T.I. Thus the ratings obtained by subtracting the average O.T.I. kill from the average kill given by the sample tested under the same conditions do not agree with the average of the ratings obtained by each laboratory. However, since none of the discrepancies were greater than one point, it was believed to be preferable to average all the data turned in rather than omit the incomplete reports from the averages.

The subject of moribund flies still appears to be a controversial one, for a few laboratories refused to attempt any such determinations. The only moribund fly data given in the tables are those for the pyrethrum-rotenone sample since nearly all the reports on the other samples gave less than one per cent.

In view of the fact that a number of the laboratories which use the older small group method have been very skeptical about results obtained by the large group method, it is interesting to note the close agreement between the average results obtained by the two methods, especially those listed in tables 1 and 2 where the standard 12 ml. dosage was used. On the 6 ml. tests the agreement between the two methods is not quite as good, but this is not surprising since all the 6 ml. tests gave more erratic results than did the 12 ml. tests.

In tables 1 and 3 it is interesting to note the wide variations in per cent knockdown obtained by the different laboratories. In table 1 the 10-minute knockdown of the pyrethrum-rotenone sample varied from 91 to 99.6 per cent, and for the O.T.I. it varied from 91 to 100 per cent. However, the laboratories that obtained very high knockdowns with the pyrethrum-rotenone sample also obtained very high knockdowns with the O.T.I., and in all but one case the results agreed within two points. *This indicates that it is fully as important to determine knockdowns in comparison with the O.T.I. as it is to determine killing power in this manner.* Nearly all government specifications now require that kills be determined by comparing the sample with a standard such as the O.T.I., but a number of them still require a "99 per cent knockdown in 10 minutes," or even 100 per cent knockdown with no reference to any standard. This is just as ridiculous as specifying an 80 per cent kill without reference to any standard because houseflies vary about as widely in their resistance to knockdown as they do in their resistance to kill.

IN the second series of tests the laboratories were requested to determine 5-minute knockdowns on the 10-minute exposures. These data had to be obtained either by one or more observers who made counts at the end of 5 minutes by looking through windows of the test chamber or by a photographic method. The method described by Lederer[3] wherein an observer is stationed inside the chamber could not have been used in this work because it would have interfered with the kill determinations. About half the laboratories reported these fractional knockdown observations, and their results are listed in table 3 in parentheses beside the 5-minute knockdowns that were obtained in the 5-minute exposures. None of the laboratories gave any description of the methods that they employed in obtaining these data, but in most cases the two 5-minute results are in good agreement. It is also interesting to note that the laboratories using the large and small group methods were about equally successful in making these fractional knockdown determinations.

In order to determine which of the variations in the official test procedure gave the best agreement between laboratories, the difference between the average rating and the rating obtained by each individual laboratory was squared. For example, in table 2 the average rating for the 150 mg. pyrethrum sample was +15, while the rating obtained by Laboratory No. 7 was +18. Thus the deviation was 3, and the deviation squared was 9. The sum of these individual d^2 values was used as a means of estimating the agreement between laboratories. The sums of the d^2 values are given in table 5 for each of the different test procedures.

The results given in table 5 indicate that there was much better agreement between laboratories on the rating of the 150 mg. pyrethrum sample than there was on the rating of the pyrethrum-rotenone sample, especially in the 12 ml. dosage tests. This is not at all surprising since in testing the 150 mg. pyrethrum sample with the O.T.I., which is a 100 mg. pyrethrum sample, the comparisons are between samples having exactly the same toxic principles. However, in the case of the pyrethrum-rotenone sample the rotenone contributes the major part of the killing power, and the comparison is between two toxic principles which, from the manner in which they affect the flies, can be considered to be quite different in their action. Thus it appears that the O.T.I. measures the resistance of houseflies to pyrethrum much more accurately than it does their resistance to rotenone. Since all the synthetic insecticides that are now used to any extent in fly sprays also

[3] Lederer. *Soap, 16,* No. 11, 101 (1940).

TABLE 5

AGREEMENT BETWEEN LABORATORIES AS MEASURED BY SUMS OF DEVIATIONS SQUARED

(For explanation see text)

Dosage	*150 mg. Pyrethrins*		*55 mg. Pyrethrins +50 mg. Rotenone*	
	5-Minute Exposure	*10-Minute Exposure*	*5-Minute Exposure*	*10-Minute Exposure*
12 ml.	78	130	263	468
6 ml.	349	392	359	401

differ from pyrethrum in the manner in which they affect the flies, they may be expected to present the same difficulty that the rotenone does when one attempts to rate them in comparison with the O.T.I.

This probably is the explanation for the fact that different laboratories are much more likely to disagree in their official ratings of samples containing rotenone, derris extractives, thiocyanates, or other synthetics than they are in their ratings of samples which contain pyrethrum as the sole toxic principle.

Table 5 also indicates that the agreement between laboratories was better on the 12 ml. than on the 6 ml. dosage tests. This may have been partly due to the fact that the decreased dosage put the O.T.I. kills of many laboratories below the most satisfactory range for testing, i. e., 30 to 55 per cent kill.

Effect of Reduced Exposure Time

AS would be expected, the two samples and the O.T.I. all gave slightly greater average knockdowns in 10 minutes than they did in 5 minutes. In the case of the 150 mg. pyrethrin sample and the pyrethrum-rotenone sample the average 24-hour kills were almost exactly the same for the 5- and 10-minute exposures, but the O.T.I. gave an entirely unexpected result since the average per cent kill was 44.7 for the 5-minute exposure and 43.5 for the 10-minute exposure. However, since five laboratories obtained higher kills for the 5-minute exposures, four laboratories obtained higher kills for the 10-minute exposures, and one laboratory obtained the same for both exposures, the results are not at all conclusive. Furthermore, in the 6 ml. dosage tests the 10-minute exposures gave higher O.T.I. kills than did the 5-minute exposures.

In general, the reduction of the exposure time from 10 to 5 minutes has a much more pronounced effect on the 6 ml. tests than on the 12 ml. tests. In all cases the average knockdowns and kills were lowered when the exposure time was reduced to 5 minutes. The most pronounced decrease was in the knockdowns.

TABLE 6
RESULTS OBTAINED BY LABORATORY No. 12

Procedure	*6 ml. 5 min.*	*6 ml. 10 min.*	*12 ml. 5 min.*	*12 ml. 10 min.*	*Material*
No. of Tests	6	6	6	6	150 mg. Pyrethrins
No. of Flies Used	3,277	2,934	3,022	3,284	
% Knockdown	88.6	96.7	96.9	99.5	
% Kill	37.6	37.1	48.3	53.1	
O.T.I. Difference (same procedure)	+13.2	+ 8.9	+10.8	+15.4	
O.T.I. Difference (12 ml.-10 min.)	— 0.1	— 0.6	+10.6	+15.4	
No. of Tests	6	6	6	6	
No. of Flies Used	2,752	2,613	2,647	2,506	55 mg. Pyrethrins
% Knockdown	73.8	82.5	92.4	99.1	+50 mg. Rotenone
% Kill	35.1	39.1	57.9	60.3	
% Moribund	5.3	8.4	9.6	8.2	
O.T.I. Difference (same procedure)	+10.7	+10.9	+20.4	+22.6	
O.T.I. Difference (12 ml.-10 min.)	— 2.6	+ 1.4	+20.0	+22.6	
No. of Tests	6	6	6	6	40 mg. Pyrethrins
No. of Flies Used	2,923	2,546	2,756	3,022	+420 mg. Isobutyl
% Knockdown	77.7	93.3	97.1	99.2	Undecylenamide*
% Kill	33.6	38.3	57.1	56.8	
O.T.I. Difference (same procedure)	+ 9.2	+10.1	+19.6	+19.1	
O.T.I. Difference (12 ml.-10 min.)	— 4.1	— 0.6	+19.4	+19.1	
No. of Tests	6	6	6	26	Official Test
No. of Flies Used	2,838	2,675	2,875	12,950	Insecticide (O.T.I.)
% Knockdown	84.5	89.2	96.2	99.1	
% Kill	24.4	28.2	37.5	37.7	
O.T.I. Difference (same procedure)	....	....	....	....	
O.T.I. Difference (12 ml.-10 min.)	—13.3	— 9.5	— 0.2	....	

* Isobutyl undecylenamide has the following chemical structure:
$CH_2=CH(CH_2)_8CONHCH_2CH(CH_3)_2$

Effect of Reduced Dosage

FROM the standpoint of consumers who use hand sprayers, reduced dosage is probably the most important single factor among those being discussed in this paper. Unfortunately, in the cooperative tests herein described, the 6 ml. tests were not run in direct comparison with the 12 ml. tests except by one laboratory. The fact that most laboratories ran the 6 and 12 ml. tests about six months apart makes it impossible to obtain much useful information by direct comparison of the two series. For example, if a laboratory conducted its 12 ml. tests on flies having a resistance such that they gave approximately 50 per cent kill with a 12 ml. 10-minute O.T.I. and then six months later ran the 6 ml. tests with flies that would have given only 35 per cent kill with a 12 ml. 10-minute O.T.I., any direct comparison of kills obtained with the 6 and 12 ml. dosages would be very misleading. However, the direct comparisons between 6 and 12 ml. dosages for both 5- and 10-minute exposure times were made by Laboratory No. 12. These results are given in table 6. The following explanation of these tests is the one supplied by the laboratory making the tests:

> "The large group method using 5 - day - old laboratory-reared flies was used in the following tests.
>
> "Because of the large number of tests and materials it was impossible to run all procedures and materials in the same chamber on the same day, especially if paired tests were to be run. Therefore, the following procedure was used.
>
> "Paired tests of each material were run side by side using a particular time and dosage procedure. In the case of the three non-standard test procedures, two or three additional tests using the standard test procedure with the Official Test Insecticide were also run. Thus, for each particular material and time-dosage test two Official Test Insecticide differences were established.

"After all materials had been run on three different cultures on three different days, a final Official Test Insecticide per cent kill was calculated. That is, from the Official Test Insecticides run while the test materials were being run by the standard procedure and also from the standard procedure Official Test Insecticide tests run concurrently with the different time and dosage tests.

"After this final Official Test Insecticide value was calculated, the various Official Test Insecticide differences established were added or subtracted to or from it and a per cent kill was reported for the various materials at various times and dosages.

"In other words, all standard procedure Official Test Insecticides run concurrently were averaged and this value was used as a common denominator."

The test results given in table 6 indicate that the reduction of dosage from 12 ml. to 6 ml. has a pronounced effect on both the knockdown and killing power of all the samples tested. This is to be expected, for when only 6 ml. of insecticide is used, the quantity of toxicants introduced into the test chamber is the same as it would be if 12 ml. of an insecticide having half the concentration were used. Thus when 6 ml. of the 150 mg. pyrethrum solution is used, one might expect it to have about the same effect as 12 ml. of a 75 mg. pyrethrum solution. In fact, one might expect a slightly greater kill from the 12 ml. because of the extra 6 ml. of deodorized kerosene. From published data on the dosage-mortality curve for pyrethrins[4] one learns that the kill given by 12 ml. of a 75 mg. pyrethrum solution is about —12 as compared with 12 ml. of a 100 mg. pyrethrum solution (O.T.I.). However, in table 6 the kill given by 6 ml. of the 150 mg. pyrethrum solution was about equal to that given by 12 ml. of the O.T.I. Similarly, these published data indicate a kill of about —23 for 12 ml. of a 50 mg. pyrethrum solution while 6 ml. of a 100 mg. solution gave —9.5 with a 10-minute exposure and —13.3 with a 5-minute exposure. Thus the kills obtained with straight pyrethrum at the reduced dosage are higher than one might have expected.

The same comparisons cannot be made in the case of the pyrethrum-rotenone and the pyrethrum-isobutyl undecylenamide formulas because there are no suitable published data for their kills at half the concentration used in these tests. However, the data of table 5 indicate their loss in killing power to be a little greater than that of the 150 mg. pyrethrum solution when the dosage is reduced to 6 ml.

Probable Effects of Reduced Dosage and Reduced Exposure Time if Incorporated in the Present Official Peet-Grady Method

SINCE this subject has not yet been discussed by the Insecticide Scientific Committee, the statements on this subject represent merely the views of the author.

The reduction of exposure time from 10 to 5 minutes with the dosage held at the present level of 12 ml. would offer some advantages over the present method. It would shorten somewhat the time required for conducting tests, and 5-minute knockdowns would probably give more useful performance data on a household fly spray than do the present 10-minute knockdowns. From the results given at the bottom of table 2 it is evident that the 5-minute exposure time causes very little change in kill and would not make it necessary for manufacturers to revise test data on their products. Furthermore the d^2 totals given in table 5 were slightly less for the 5-minute exposures than they were for the 10-minute exposures. This indicates that the results of the various laboratories participating in the tests were in fully as good agreement when 5-minute exposures were used as they were when 10-minute exposures were used.

In reducing the dosage from 12 ml. to 6 ml. a number of undesirable results appeared. First, the knockdowns obtained by many laboratories were so low that they probably interfered with the accuracy of the kill determinations since in many cases 20 or 30 per cent of the flies did not even reach the observation cages. The majority of the kills were too low to give reliable comparisons with the O.T.I. The general consensus of opinion seems to be that for best results the O.T.I. kill should be between 30 and 55 per cent. Even with the present 12 ml. dosage many laboratories have experienced considerable difficulty because their particular strain of flies became too resistant and gave 12 ml. O.T.I. kills below 30 per cent. Reduction of the dosage would tend to aggravate this condition unless the pyrethrin content of the O.T.I. were increased. The results given in table 4 indicate that a concentration of 150 mg./100 ml. would probably be satisfactory.

The 6 ml. dosage appeared to change all the ratings in comparison with the O.T.I. Thus if it were adopted as the official test method, all manufacturers, both of concentrates and finished insecticides, would probably be forced to revise the claims for their products. At any rate, since changes in dosages have an effect on the rating, the dosage should be definitely specified. A number of testing laboratories have not adhered to any fixed dosage but have varied the dosage in order to keep their O.T.I. kills within a desired range.

Even though the 6 ml. dosage does not appear to be desirable for use with the present official test method, it will probably be useful as a supplementary test for manufacturers who are interested in obtaining more information about their products. As was pointed out in the second paragraph of this article, the 6 ml. dosage probably is much closer to the dosage employed by people who apply the material with hand sprayers than is the present 12 ml. dosage of the official method.

Summary and Conclusions

1. The reduction of exposure time from 10 to 5 minutes did not cause any substantial changes in the knockdown and kill when the standard 12 ml. dosage was used.

(*Turn to Page* 107)

[4] Miller and Simanton. *Soap, 14,* No. 5, 103 (1938).
Tischler and Stonis. *Soap, 14,* No. 10, 97 (1938).
Hoyer, von Schmidt, and Weed. *J. Econ. Entom., 29,* 598 (1936).
Murray. *Soap, 14,* No. 2, 99 (1938).

AGRICULTURAL INSECTICIDES...

A BRIEF SUMMARY OF FINDINGS AND RECOMMENDATIONS ON AGRICULTURAL PEST CONTROL PROBLEMS — AS REPORTED BY STATE AGRICULTURAL EXPERIMENT STATIONS

MANUFACTURERS of agricultural insecticides who keep closely in touch with experimental work on entomological problems conducted at the various state agricultural colleges never lack profitable tips on new marketing opportunities for their products. These are often embodied in the annual reports of experiment station activities, these research findings quickly reaching the farmer through the county agents of the college extension service. Thereafter, the manufacturer who is first on the ground with what the college authorities advise the farmers to use, gets the business. Quite often profitable sales outlets and distribution machinery can be found in the cooperative purchasing organizations conducted by the farmers themselves, which can become powerful allies in promoting insecticide sales.

Investigations over the past year at the experiment stations covered a myriad of insecticide materials. From a score of recently released reports a few highlights are briefly presented.

In California petroleum oil sprays have been in use over 17 years and, although possessing many favorable characteristics, farmers' complaints indicated that they also have many drawbacks. Concentrating on efforts to make petroleum sprays safer and more effective, California agricultural station investigators tried three approaches to the problem: (1) by reducing the dosage; (2) by reducing grade and weight of the oil; (3) by adding supplementary materials to increase efficiency. Referring particularly to point 3, the report says:

"Addition of many toxic materials to oil sprays has been tried in the hope that by increasing the insecticidal power of the solution it might be possible to cut down the dosage. Of the toxicants studied, the resins obtained from derris and other plants containing rotenone have been most promising. These resins are practically insoluble in highly refined petroleum oil or in water. This has presented the problem of finding a suitable mutual solvent for resins and oil. After testing a large number of different materials, success has finally been achieved. Resins from the derris plant can be brought into solution with oil by use of 2 (4-tertiary butyl phenoxy) ethanol, di-butyl phthalate or 'Cardolite.' The resulting spray is effective against both black and citricola scale; excellent control is obtained by this spray with a light-medium grade of oil with dosage reduced from the conventional 1-2/3 per cent to one-quarter or one-half per cent. Commercial use of these materials will probably begin during the coming season. Addition of derris resins also markedly improves control of red scale, even though neither the weight nor dosage of oil can be reduced."

In studying the comparative effectiveness of oil sprays and fumigation in controlling citrus pests, results led to a stand in favor of fumigation.

"Analysis of citrus fruits taken from 14 different groves during three years," says the report, "have shown that total soluble solids, acids and reducing sugars are higher in fruits from fumigated groves than in those from groves sprayed with oil." No significant differences in effect, the report adds, were found between different types of oil sprays, whether emulsive, emulsion or tank-mixture, although low doses of oil with added toxicants greatly reduced the deleterious effect of oil sprays. Attention was also given to the possibility of developing water sprays to replace those using oil and the report says: "Results obtained are encouraging."

In fighting "orange tortrix," a relative newcomer to the California groves, satisfactory control measures were worked out some years back involving use of cryolite. This was used for several years, then banned by federal authorities. A substitute was found, then federal regulations were reversed, but not until doubts were raised as to whether or not cryolite was necessary.

"Consequently," continues the report in reviewing this "off again, on again" situation, "applications of this material must be considered largely as insurance, a fact that requires treatment to be relatively inexpensive. One way is to incorporate cryolite with materials used for other pests, particularly with oil sprays. Detailed studies showed that cryolite can be combined satisfactorily with oil when the system is stabilized by addition of a suitable colloid. This information was passed on to growers and as a result thousands of acres of oranges have been treated successfully with cryolite and oil sprays at a cost of from only three to five cents per tree more than with oil alone."

New Hampshire Agricultural Experiment Station's report offers a further note on petroleum sprays, in

an investigation of "Penetration of Contact Insecticides," says the Granite State report: "Among the various liquids examined, maximum penetration of insect integument was exhibited by a low-boiling petroleum derivative (5 to 7 carbons) standardized under the name 'Apcothinner.' Another petroleum derivative (a standard purified household spray base) gave much lower penetration. Approximately only one-sixth as much as the lowest boiling fraction."

The New Hampshire project involved also steam distilled pine oil and six alcohols from methyl to octyl and detailed data on their varying powers of penetration are included in the report. Another phase of the project was concerned with rate and amount of penetration of various liquids into an insect egg, with the following findings reported:

"Mineral oils of low viscosity penetrated the egg more quickly than oils of higher viscosity. Mineral oils low in unsaturates penetrated more quickly than the corresponding oils containing a larger quantity of unsaturates. Mineral oils gave more rapid penetration than glycerides of approximately the same viscosity. Steam-distilled pine oil penetrated more rapidly than glycerides, and more rapidly than mineral oils, except those of very low viscosity. Among the insect eggs used, those of the American roach showed most rapid penetration, followed by eggs of the Colorado potato beetle, then by those of the Mexican bean beetle. Preliminary studies on relation of the age of an insect's egg to speed of penetration (using eggs of Mexican bean beetle) indicated that with this species the older eggs were more rapidly penetrated than the younger eggs."

IN Texas, agricultural experiment station workers, with cooperation from the Texas Gulf Sulphur Co. and the Freeport Sulphur Co., made numerous tests of the effectiveness of sulfur dust on insect pests of cotton and other plants. In combatting the cotton flea hopper finely ground sulfur dust (99 per cent passing 325 mesh) and sulfur of microscopic fineness were applied both as dust and by means of spray machines. The spray applications, at 300 lbs. pressure, and under rather adverse conditions were found to give approximately as good results as the dust application of finely ground sulfur. In another series of tests to compare ground sulfur, sulfur of microscopic fineness and a ground sulfur-calcium arsenate mixture, no significant differences appeared in the resulting kill.

Favorable results were reported from use of sulfur to control the disease of eggplants known as "eggplant yellows." Cryolite-sulfur (1-1) dust was found to be a useful control for tomato fruit worm, while for turnip louse and cabbage looper a combination rotenone-sulfur dust produced effective results. Numerous other details of this work with sulfur are also included in the Texas report.

The Iowa Agricultural Experiment Station reports that a mass of information on the toxic and repellent effects of chromium and antimony compounds has been obtained and that search for new insecticides among organic compounds is being continued. A manuscript on results from some 200 inorganic and organic compounds was announced as in course of preparation.

Iowa investigations contributed a further note on sulfur, this time for control of potato insects. To quote: "Dusting sulfur (300 mesh) was found to be as effective in controlling the leaf hopper as bordeaux mixture. Sulfur dust containing paris green, calcium arsenate or London purple is very effective in control of the leaf hopper and shows promise of being as good a control for other potato insects as bordeaux mixture."

In Massachusetts, Dow Chemical Co., Standard Agricultural Chemicals, Inc., and California Spray Chemical Co. cooperated with entomology authorities at the Amherst agricultural experiment station in investigations of the ovicidal value of various oil sprays. The report goes into detail on materials and methods used and summarizes thus: "All of the sprays proved very toxic to aphid eggs."

The investigations offered opportunity, for the first time, to observe results of dormant applications of different products on a long list of deciduous ornamental trees and evergreens. Little damage was noted on the deciduous ornamentals, but very general injury, varying in degree from slight burning to serious defoliation, resulted on practically all types of evergreens, the report states.

Studies of insecticidal control of onion thrips at Massachusetts station included field tests of the following sprays: pyrethrum-oil; rotenone-oil; nicotine-oil; derris, alone and with talc or cherokee clay as adhesives; a pyrethrum-sulfur mixture and the standard nicotine sulfate-soap combination. Results are summarized thus: "All sprays containing nicotine or rotenone gave good to excellent control and were noticeably superior to pyrethrum combinations. The effectiveness of derris was somewhat improved by addition of talc or clay. Derris also showed a marked residual effect which retarded reinfestation. Calcium cyanamid applied as a light dust to plants and soil caused a great reduction in the population of thrips, but killed the plants. When this material was used in an amount that was not toxic to the plants it failed to kill thrips. The nicotine sulfate-soap combination was again superior to all other sprays or dusts used, giving 95 per cent effective control."

In Maine potato growers are becoming interested in the new copper fungicides and investigators at the Orono station sought to obtain one easy to apply, relatively cheap to use and at the same giving good control of insects and diseases. A severe blight epidemic in two succeeding years gave good opportunity to test the relative merits of different commercial products, along with bordeaux mixture. The first year all the fungicides yielded more potatoes per acre than bordeaux but in the following year, under extremely

severe blight, bordeaux was the most effective of the fungicides. Companies whose products were tested included: Rohm & Haas Co., California Spray Chemical Corp., Chipman Chemical Co., General Chemical Co., Sherwin-Williams Co., Monsanto Chemical Co., Grasselli Chemical Co., Brooklyne Chemical Works, Nichols Copper Co., and Bonide Chemical Co.

THE New York State Agricultural Experiment Station reports that studies on toxicity of nicotine administered internally have been substantially completed. "Results indicate that nicotine, if toxic to an insect, is nearly equally toxic regardless of the form in which it is administered and whether it is administered into the gut or into the blood stream of the insect. Most of the large insects tested, however, seemed resistant to nicotine, although the young larvae of some of these species are probably susceptible."

". . . One notable finding was the high toxicity of nicotine peat, which gave kills under laboratory conditions at 0.0125 per cent nicotine, comparable to those with the standard nicotine bentonite at four times that concentration. It is anticipated, however, that the material may not be as good a sticker as the bentonite compound and tests are being planned to test the performance of the peat in the field."

A group of animal and vegetable oils were tested against coddling-moth eggs at Cornell, resulting in the conclusion that "several of these oils, notably those of rapeseed, coconut, sunflower seed, cottonseed and raw linseed, were probably not significantly less toxic than was petroleum oil. In work with petroleum oil and some of the above-named oils tested as ovicides," it has been shown that certain of the vegetable and animal oils, notably castor oil and pine oil, are more efficient carriers of nicotine than is petroleum oil."

In the New York studies on deposits resulting from nicotine compounds and oil-nicotine combinations the points which thus far appear to have been established are listed as follows: "(1) Free nicotine evaporates almost completely with the water; (2) fatty acids and other weak acids do not fix the nicotine to any significant extent; (3) the stronger acids, such as sulfuric and pectic, are intermediate, showing considerable loss on drying but holding the remaining residue for a long period; (4) bentonite peat and 'Aesket' fix the nicotine completely so far as evaporation is concerned; (5) oils, with the possible exception of castor oil, have little effect on the loss of nicotine from any of the materials tried."

"Studies of the vapor pressure of nicotine in water solutions show that with increasing percentages of nicotine the loss of the nicotine relative to that of the water first increases rapidly, then remains nearly constant over a long range and finally increases very rapidly during free evaporation. The relative losses by evaporation through most of the range will be in the order of 200 of water to 1 of nicotine by weight . . .

"It has been demonstrated by histological techniques that in the fruit flies, as in other insects arsenic attacks the lining of the midgut to a degree sufficiently violent to cause death. Nicotine has been found to be repellent to the insects both in that they do not feed freely and in that small doses cause them to regurgitate before a lethal dose can occur. The Reinecke salt (not its nicotine compound) is exceedingly toxic to the insects, doses of about one-tenth to one-fourth of the lethal dose of tri-valent and pentavalent arsenic being invariably lethal to all three species used (two cherry fruit flies and the apple maggot). Rotenone, phenothiazine and xanthone have been less toxic to the insects in laboratory tests than has arsenic. Many new observations on the feding habits of the flies are being collected."

Other New York investigations were concerned with control measures for the alfalfa snout-beetle, white grubs and other forage-crop insects, Mexican bean beetle, cutworms, etc. In an investigation of "Dermestids injurious in dwelling houses," pliofilm garment bags and hatboxes were used in experiments with the black carpet beetle and the furniture carpet beetle. "It was found," says the summary of results, "that the fumes of paradichlorobenzene, when confined at room temperature in 'Pliofilm' containers, are strong enough to kill the larvae of both these beetles. Methyl bromide, at strengths that can be safely used in greenhouses, was found not to be a satisfactory fumigant for carpet beetles. Larvae of the furniture carpet beetle appear to be more resistant to the fumes of methyl bromide than are larvae of the black beetle. Experiments are being conducted to determine the effect of temperature on the egg stage of the black carpet beetle."

AT Stillwater, Okla., the state experiment station reported completion of a four-year control project on 380 plots to develop effective grasshopper baits, that would be less expensive than those formerly in use. "Cheaper baits were developed by showing in tests that (1) Lemons, oranges, amyl acetate and molasses, previously used with the idea that they attracted hoppers to the bait, have little value; (2) The bran base may be greatly diluted with less expensive substances, such as sawdust or cottonseed hulls and the bait will still be effective."

In a search for more effective and economical materials for killing the young stages of flies while they are developing in manures and other wastes, approximately 80 materials were tested at Stillwater. Results are summarized thus: "Several of these —sodium arsenite, paris green, white arsenic, methyl thiocyanate, and mercuric chloride—are much more effective than borax, the chemical recommended at the present time. Copper arsenate, sodium arsenate, ethylene dichloride and ethylene chlorohydrin are equally as effective and may be more useful. The effect of some of these chemicals on the

soil is not known yet and caution is necessary in their use."

In Utah one of the major factors limiting production of alfalfa seed is the Lygus-bug and in an effort to find an effective insecticide seven materials were tested through two seasons, as follows: (1) sulfur, 100 per cent; sulfur, 85 per cent, plus paris green 15 per cent; (2) sulfur 75 per cent, plus pyrethrum powder, 25 per cent); (3) sulfur, 50 per cent, plus pyrethrum powder, 50 per cent; (4) "Cyanogas" (H-dust), 100 per cent, (5) "Lethane" dust, 100 per cent; (6) sulfur, 75 per cent, plus calcium arsenate, 25 per cent; (7) "Pyrocide" dust, 5 and 10 per cent respectively, plus "Pyrophyllite" as a carrier. According to the report, the bug population was significantly reduced on most of the treated plots, "yet statistical analysis of resulting seed yields showed no significant differences resulting from the various insecticidal treatments."

Work on control measures for Mormon crickets, another serious Utah pest, was continued. Previous investigations had established that of 12 stomach poisons tested, fluosilicate and sodium fluoride were most effective and that of the various carriers tried none was superior to bran. New phases of the work covered use of oil as a moistener and the effectiveness of various attrahents in cricket baits. Incomplete results "indicate that oil is superior to water as a bait moistener." And of 20 chemicals tested as attrahents, 11 gave indications of increasing the attractiveness of poison baits to Mormon crickets. These 11 are: N-butyl sulfide; N-dibutyl amine; "Lethane"; diamyl amide of dichloro acetic acid; diethylene monothio dioxide; monoamylamine; amyl laurate; ethylene glycol ethyl thioether; N-butyl disulfide; benzyl mercaptan; and amyl mercaptan.

In the state of Washington insecticides for control of pests attacking apples and other fruits were extensively investigated and reported on. From the Cranberry laboratory comes the following note on "Fungi and Fungicides:" "Most of the Washington growers spray their cranberry bogs once or twice each season with a 4-4-50 bordeaux mixture, for control of fungi that cause field and storage rots. Prior to the general use of rotenone and pyrethrum sprays, the bordeaux mixture was applied as a combination spray with nicotine sulfate for control of fungi and insect pests. When Bordeaux is combined with pyrethrum or rotenone sprays it reduces the insecticidal value of these materials. Since pyrethrum and rotenone now have become the standard spray materials for control of most cranberry insect pests, an effort has been made to find a satisfactory fungicide to combine with them for use on cranberry bogs. Of the materials worked with to date in the experimental plots, cupric oxide and cupric oleate have given best results . . . The cupric oxide or red copper oxide, being practically insoluble in water, has a tendency not to stay in suspension and to settle in the bottom of the spray tank. This is especially true in small spray outfits, where the agitation in the tanks is not very vigorous. Storage tests on the keeping qualities of berries sprayed with these two materials will be carried on during the winter."

Idaho's Experiment Station report offers the following on pea weevil control: "The addition of 5 per cent cryolite to a dust containing 1 per cent rotenone did not increase its toxicity to the insects. A limited number of tests indicates that size of the particles of the carrier may have an important effect upon the toxicity of dusts containing rotenone; a carrier composed of coarse particles appears to be much more effective than one composed of finely ground particles. Tests with a single sample of derris showed this sample to be much more toxic than any of the samples of cube used in other experiments. A dust containing 1 per cent of pure rotenone was not as toxic as a dust prepared from cube root and containing 1 per cent rotenone; other materials in the root are, therefore, toxic to the insects. A cube dust in gypsum was not as toxic one month after being mixed as when fresh, because of the alkaline character of the carrier. A finely dispersed rotenone dust in which the particles carried a negative charge was no more toxic than a similar dust in which the particles carried no charge."

At Michigan State College, in a study of the elasticity of the films left by certain oils employed as stickers, it was found "that soybean oil, peanut oil, mineral oil-oleic acid and mineral oil deposit elastic films on waxy surfaces, such as those of the apple. The order of elasticity was that indicated by this listing. Soybean oil spreads out into the thinnest film. One pound will spread over an area of 141 acres; one pound

PAPER FOR PEET-GRADY TEST

IN testing liquid spray insecticides by the Peet-Grady Method, prescribed practice calls for covering the floor of the chamber with gray bogus paper. Reports from some laboratories indicate that they are now unable to purchase this type of paper from their usual sources of supply. Experiments with brown kraft paper are being conducted comparing results with the gray bogus paper, although there is reported some difficulty in obtaining the kraft paper in correct size. A bulletin calling this situation to the attention of all laboratories using the Peet-Grady Method has just been issued by A. E. Badertscher of McCormick & Co., Baltimore, chairman of the Insecticide Scientific Committee of the National Association of Insecticide & Disinfectant Manufacturers.

ordance with Section 3617, re-
statutes."

ROACHES GET A BREAK

Insecticide Ingredient Going to Steel Mills, Not Exterminators

A new problem has arisen out of the defense program, at whose door varied and unique business difficulties already have been laid. It became known yesterday that the increase in steel production may seriously hamper exterminators in ridding buildings of roaches and other household pests.

The newest trouble, according to members of the New York Pest Control Association, grows out of the fact that much fluor spar, from which sodium fluoride is derived for the manufacture of roach powder and similar insecticides has been diverted to steel mills and a shortage has developed for civilian needs. While hoping f... rating

NEWS ITEM.

NO SIR-EE!...

Not while an ample supply of

KEN YA PYE

(MEANING KENYA PYRETHRUM)

is available!

- **KEN YA PYE (meaning Kenya pyrethrum) kills roaches and other household and agricultural pests.**
- **With a pyrethrin content of 1.3% it is the strongest and most effective pyrethrum. It is the great, natural, SAFE, vegetable insecticide.**
- **KEN YA PYE (meaning Kenya pyrethrum) is the highest quality, arriving in increasing quantity and at lowered price. Use a stronger dose of it in your sprays and dusting powder, and forget the shortage and high price of substitutes.**
- **Kenya Farmers have a fine crop of high test Kenya pyrethrum and heavy shipments have arrived and are afloat.**

STRONG • EFFECTIVE • PLENTIFUL
LOWER IN PRICE • AND *SAFE*

TELL YOUR TRADE THAT KENYAPYE IS PRODUCING *Better* INSECTICIDES

of peanut oil, under similar conditions, will spread over only 106 acres; mineral oil will spread over only a fractional part of such area."

South Carolina farmers had been objecting to use of calcium arsenate for boll weevil control, because plant lice increased in number following the applications. For several years, experiments to find ways to overcome this trouble have been in progress. In 1940, according to the report from Clemson, "several experiments were conducted in which 0.5 per cent of rotenone from derris were added to calcium arsenate and to mixtures containing equal parts of calcium arsenate and sulfur, and calcium arsenate and diatomaceous earth. Eight applications of these mixtures were made. In no instance did the aphids become numerous enough to cause injury, while injury did occur in plots treated with calcium arsenate alone . . .

"One-half of 1 per cent of rotenone has been used in these tests, but further experimentation may show that even smaller amounts will be sufficient. By mixing equal parts of sulfur or diatomaceous earth with calcium arsenate and adding rotenone, a relatively cheap mixture can be produced, which, when applied at the rate of eight to ten pounds per acre per application, has given satisfactory boll weevil control and completely kept down aphid injury.

"Or ground derris root can be added to undiluted calcium arsenate in the proportion to make 0.5 per cent rotenone and the mixture used at the rate of six pounds per acre. The rotenone content of derris and cube roots, the usual sources of rotenone, varies considerably and should be definitely determined, before the mixtures are prepared."

—— ♦ ——

"Poison" vs. "Insecticide"

Use of the word "poison" as applied to insecticides whether they are poisonous or not, and the confusion of the terms "poison" and "insecticide" in the literature of entomology are decried by S. Markovitch, Tennessee Agricultural Experiment Station, Knoxville, in an article in a recent number of the *Journal of Economic Entomology*. Mr. Markovitch cites numerous illustrations from textbooks, journals, articles and other publications to show the hold the word "poison" has acquired in the literature. Quoting Professor Markovitch: "In a widely used text there is a chapter on 'Contact Poisons.' Under this heading there are discussions of such insecticides as nicotine sulfate, pyrethrum, sulfur, lubricating oils, soaps, and derris. In another textbook, under 'Stomach Poisons' are discussed the arsenicals, fluorine compounds, phenothiazine, rotenone and nicotine. In an extension bulletin from an eastern state occurs the following: 'The stomach poisons include lead arsenate, calcium arsenate, paris green, cryolite, and fluosilicates. The contact poisons are nicotine, pyrethrum and derris.' "

Definitions of poison are also cited from various sources. It is shown that even under a broad definition, many insecticides such as pyrethrum or cryolite can not be classed as "poisons." Professor Markovitch concludes: "In entomological literature, one can easily find sulfur, pyrethrum, cryolite, lubricating oils, soaps, and other innocents referred to as "poisons." As a result spray residues have already had more than their share of apprehension by the public.

"In order to prevent misunderstanding, it would be well to substitute the word "insecticide" for "poison," and talk and write about controlling insects and applying remedies or treatments or baits rather than killing and poisoning them. It is evident that there is room for improvement in the terminology employed on the subject of insecticides. Perhaps this matter should receive special attention by a committee acting for the organization of economic entomologists."

—— ♦ ——

Silver Polish

Silver polish is prepared by kneading together a mixture of 30 parts of magnesium carbonate, 30 of whiting, and 15 of kieselguhr with a solution of 1.8 parts of dextrin and 1 part of soap in 15 parts of water. *Seifensieder-Ztg.* **68**, 250 (1941).

—— ♦ ——

Coloring Moth Balls

A spirit dye is incorporated in a solvent of methylated or industrial alcohol and wood naphtha, to produce a dye solution capable of

CLARENCE—The COCKROACH

No, Clarence hasn't gone nuts. He's just celebrating the sodium fluoride shortage.

NO ONE COULD WANT A BETTER *Polish*

for ANY METAL POLISHING JOB.
Years of experience in manufacturing polishes of many kinds have taught us how a really fine metal polish should be made . . . to actually dissolve tarnish chemically so that a soft cloth wipes it away . . . to eliminate hard rubbing . . . to restore brilliance and deposit a protective coating that retards oxidation. Because tarnishing is retarded, cleanings are needed less frequently, thus saving time and cost. It comes in two tones, as preferred—WHITE, for lighter colored metals, and BROWN, for copper or bronze. It's non-inflammable.

Why not build better business by stocking and selling this finer Metal Polish as a standard item for your customers. Once they use it, they'll be back for more, and more! Mail coupon today for information on superior maintenance products to fit your needs.

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- *Dissolves Readily*
- *Low in Acid*
- *Gives Beautiful Film*

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EXTRA WHITE BONE DRY and all other grades of SHELLAC

Samples Upon Request
TRY THESE WITHOUT OBLIGATION AND CONVINCE YOURSELF

THE MAC-LAC COMPANY

INCORPORATED
FACTORY: **RAHWAY, N. J.**

The educational exhibit of the National Pest Control Association, at the American Public Health Association meeting, Atlantic City, N. J. October 14-15-16, was in charge of Somers R. Steelman, of Atlantic City, and W. O. Buettner, N.P.C.A. secretary.

impregnating moth balls. The balls are immersed in this for 24 hours, removed, and washed with soft water, then dried. Albert E. A. Ireland-Seargeant. British Patent No. 523,-392; through *Chem. Abs.*

Peet-Grady Variations

(*from Page* 96)

2. The reduction of exposure time caused a noticeable decrease in knockdown and kill when the 6 ml. dosage was used.

3. The reduction of exposure time did not appear to have any adverse effect upon the accuracy of the results.

4. Reduction of the dosage from 12 ml. to 6 ml. caused a decrease in both knockdown and kill, but the decrease was not as great as might have been expected for 6 ml. of a 100 mg. pyrethrum solution gave a greater kill than can be obtained with 12 ml. of a 50 mg. pyrethrum solution.

5. The 6 ml. dosage gives useful information, but is not suitable for the present official test method as it brings many of the O.T.I. kills below the optimum range of 30 to 55 per cent. This could probably be remedied by increasing the pyrethrin content of the O.T.I. from 100 to 150 mg. per 100 ml.

6. Knockdown specifications should be based on comparisons with the O.T.I. or some other standard.

7. Samples containing pyrethrum as the sole toxic principle can be rated more accurately in comparison with the O.T.I. than samples containing toxic principles other than pyrethrum.

8. The large group method appears to give substantially the same results as the small group method.

Wet Mixing

(*from Page* 90)

The heaviest pastes and creams or ointments such as tooth paste or foot, bleach and freckle or white shoe cream carrying high percentages of powdered abrasive, active ingredient or pigment as the case may be and that are usually subsequently milled can usually best be manufactured in a mass mixer or kneader. The Z-shape mixing arms travel up the side and down the center, overlapping in the center of the U-shape bowl or tank.

If the mix is semi-liquid before the solids are added, the shafts may be fitted with stuffing boxes to prevent leakage. If the paste is unusually heavy the mixing arm shafts may be gear driven from both ends instead of just one. If desired, the tank may be jacketed for steam heating or water cooling. For pastes in which it is desired to "dust in" the powdered solids, a sifter can be mounted above and driven from the mixer shaft.

The speed of such heavy duty machines is relatively slow so ordinarily little or no air is beaten into the batch even though the mixing blades are mounted horizontally. In fact, it is sometimes possible to eliminate the subsequent milling operation, since this type mixer exerts a tearing action on certain compositions and consistencies. This point is well worth giving serious consideration, backed of course by experimental work, when added capacity is required, old or obsolete equipment is to be replaced or a new product is to be put on a production basis.

Another type of equipment combining the mixing and milling in one operation is available in sizes of from one to 330 gallons capacity. It operates under vacuum to remove the air from the mix. The material is forced through narrow slits between the revolving ribbed mixing disc and stationary vaned cylinder within the container, thereby disintegrating it to a finely divided and thoroughly dispersed mixture.

Since milling at best is a slow and costly operation, every effort should be exerted to eliminate it wherever possible. In those cases where it cannot be dispensed with altogether the following expedients sometimes give satisfaction. The solids can be milled with all or a portion of the oil in the formula and this mass then mixed with the main body of the ingredients. Again, the solid powdered ingredients can possibly be mixed with only a part of the excipient or fluid portion and milled, then added to the batch proper. Typical of the former is zinc oxide or titanium pigment for use in cold made soap and of the latter, pigment for liquid white shoe dressing.

NEWS...

Survey NaF Supply Situation

The Office of Price Administration is currently making a detailed survey of the sodium fluoride situation, including data on past purchases and anticipated requirements. Statistics are being gathered for the OPA through trade associations.

Baldwin Labs. Change Name

Baldwin Laboratories, Inc., Saegertown, Penn., which recently sold out its household insecticide business to the A. S. Boyle Co., Jersey City, N. J., has announced a change in corporate name to Robinson Industries, Inc. The main office of the new company which is engaged in the manufacture of plastics and other defense materials, will continue at Saegertown, Pa. The Baldwin insecticide brand which was sold to the Boyle Company is "Dwin." Boyle also owns "Fly-ded" liquid insecticide and the "Black Flag" line of insecticides. H. Ward Baldwin, formerly president and general manager of the Baldwin Laboratories, severed his connection with that company several months ago.

Milliman to OPA Section

Thomas E. Milliman has just been placed in charge of work on insecticides and fungicides in the chemical section of the Office of Price Administration. This is in addition to his work in the food section of OPA to which he was recently appointed. Mr. Milliman was associated formerly with the Grange League Federation Exchange of N. Y., N. J., and Penna. where he supervised the spray materials, lime and fertilizer business for fourteen years.

Diane Magee Arrives

Mr. and Mrs. M. L. Magee announce the birth of a daughter, Diane, on September 28th at Evanston Hospital. Mr. Magee is director of sales for T. F. Washburn Co., Chicago, manufacturers of floor wax and seals, and president of the National Sanitary Supply Association.

Export Standards for NAIDM

The committee on export standards of the National Association of Insecticide & Disinfectant Manufacturers, headed by John A. Marcuse, West Disinfecting Co., has proposed that the present commercial standards for insecticides and disinfectants of the National Bureau of Standards of the U. S. Department of Commerce be adopted by the association for its export business. They are already official for domestic business. Proposal is to be voted on at the NAIDM convention, December 1-2, at the Hotel Roosevelt, New York.

Crandell Joins Agri. Labs.

Dr. H. A. Crandell, formerly with the Bureau of Entomology and Plant Quarantine, of the U. S. Department of Agriculture, has just joined the staff of Agricultural Laboratories, Inc., Columbus, Ohio, as entomologist. Dr. Crandell studied at Purdue University, later taking his degree of B.A. in Sc., and his M.Sc. and Ph.D. degrees in entomology at Ohio State University, which studies he completed in 1937. Agricultural Laboratories, Inc., manufacture "Spraycide," "Roach-Flakes" and other insecticides.

Discuss Supply Shortages

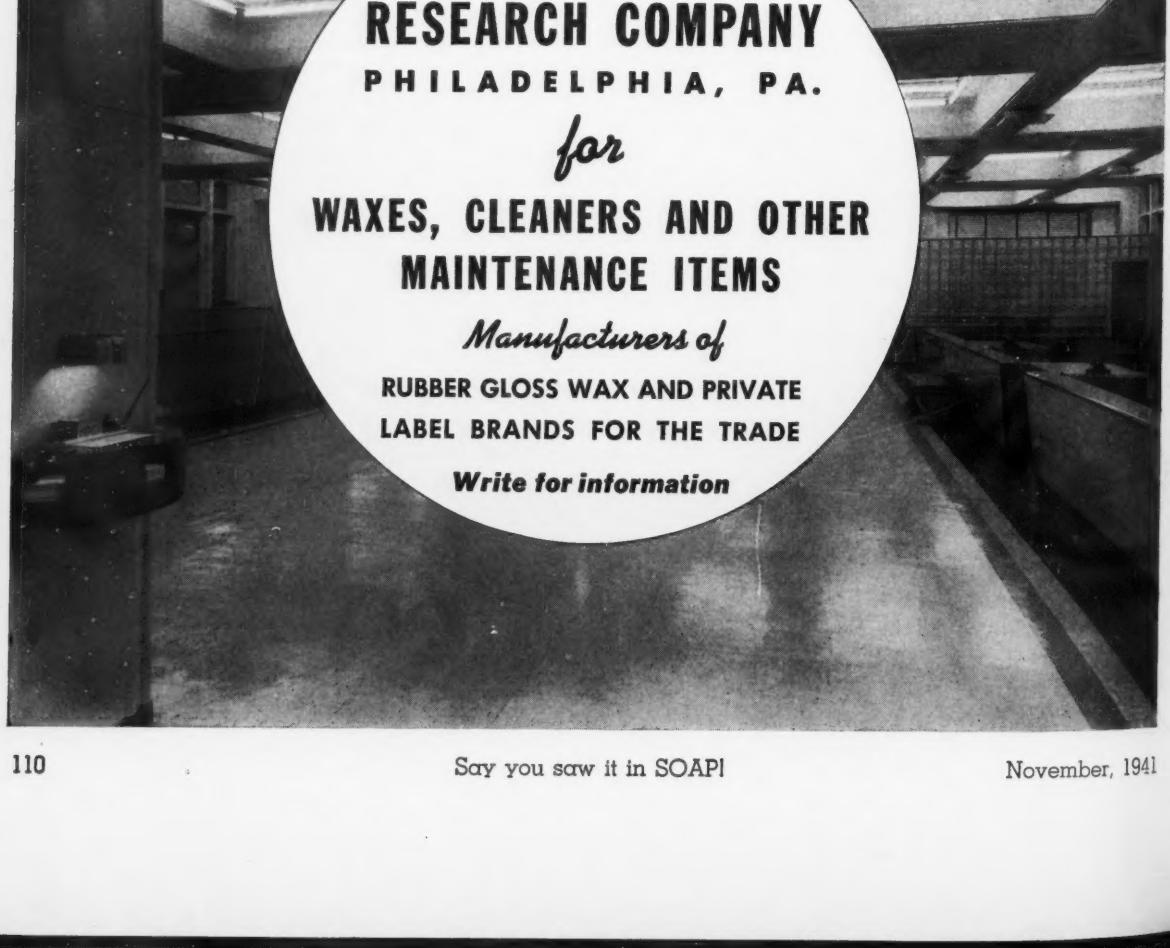
Responding to a call issued by officers of the National Sanitary Supply Association, a representative group of manufacturers of sanitary maintenance supplies assembled in Chicago, October 6, to discuss the raw materials shortage situation in their industry, and to devise methods for obtaining priority ratings on critical items. Replies to a questionnaire survey were analyzed to obtain definite data on the effect of the shortages on public health. Plans were drafted for enlisting further support from manufacturers affected and committees were authorized to organize the presentation which is to be made to Washington authorities. Marshall L. Magee of the T. F. Washburn Co., Chicago, and president of the National Sanitary Supply Association, presided at the meeting, assisted by Ed Kratsch, Milwaukee, secretary of the organization. Further conferences are to be called from time to time, as the situation may require.

Liquid Soap Pioneer Dies

Maxaulay S. U. Godfrey, credited with developing liquid soap for commercial uses, and affiliated with Swift & Co., Chicago, for forty years, died in a New York hospital recently. He was 73 years of age.

Common Fly—Polio Carrier

The discovery that common flies carry the virus of infantile paralysis was reported last month to the American Public Health Association by Dr. John L. Paul and Dr. James D. Trask of the Yale University School of Medicine. Hitherto the avenue of transmission of the disease, which cripples about 10,000 persons annually and causes the death of from 500 to 1,000, had been unknown. Previous to the work of Dr. Trask and Dr. Paul, investigators had found that the virus of poliomyelitis was carried in sewage, principally in that from hospitals but also in sewers many miles from any hospital. This indicated, said the Yale scientists, that the virus in an open sewer or privy must come in contact with many living things, particularly since infantile paralysis is a disease of summer and in its most severe form a disease of the rural areas. Suspecting the fly for this reason, the workers proved their hunch that the fly carried the infection by trapping flies in rural areas. On two occasions flies were captured carrying virus of poliomyelitis which, when extracted and injected into ani-



mals, caused quick crippling and frequent deaths. The exact species of flies has not been determined, it was stated, but it was thought probable that the green bottle fly and similar species including the common house fly may be carriers. The flies' role would explain much about the baffling nature of this disease, the scientists declared, especially when outbreaks occur over a wide area.

Ohio State Pyrethrum Study

The Ohio State University Research Foundation began a new experimental study last month of the action of pyrethrum on household insects. This is a cooperative project with Kenya Farmers Association (Co-Operative) Ltd. through Kenya Pyrethrum Extension Service in New York. F. L. Campbell is acting as supervisor and J. W. Hutzel as investigator in the new project. New methods of testing the reaction of household pests and other insects to liquid and powdered insecticides based on pyrethrum will be employed and will, as far as possible, be entirely different from any heretofore used in similar research studies.

Chem. Salesmen Nominate

Carl O. Lind, Dow Chemical Co., was nominated as president of the Salesmen's Association of the American Chemical Industry, New York, for the 1942 term, at a recent meeting of the association's nominating committee headed by John A. Chew, John A. Chew, Inc. Other officers nominated for the coming year are as follows: vice-president, Gerald S. Furman, Merck & Co.; treasurer, John J. Butler, Jr., Industrial Chemical Sales Co.; secretary, Phil LoBue, Michigan Chemical Co. New executive committee members nominated for three year terms are Frank Fanning, N. I. Malmstrom & Co., and J. P. Remensynder, Heyden Chemical Corp.

Lehn & Fink Profits Rise

Lehn & Fink Products Corp., New York, recently reported net profit for the three months ended September 30, 1941, of $129,292, equal to 32 cents a share.

NPCA Elects

The ninth annual meeting of the National Pest Control Association was held at the Fairmont Hotel, San Francisco, October 27, 28 and 29—the first national convention to be held in the Pacific Coast area.

P. Calvert Cissel, American Disinfectant Co., Washington, D. C., was elected president of the association for the coming year, succeeding L. R. Alderman. F. E. Bohman, Birchard System, Hartford, Conn., and Gilbert M. Stover, B. & B. Exterminators, Baltimore, were elected as vice-presidents, succeeding C. W. Houghton and L. A. McKenna, while all other officers of the association remain the same as this year.

The convention centered its attention on two all-important subjects—priorities and research. The discussions on priorities were concerned chiefly with the supply problem which confronts the pest control industry on such essential materials as sodium fluoride, sodium cyanide, thallium sulfate, and other important chemicals, especially those with chlorine content. The need for more research in the household and structural pest control fields was particularly stressed, with emphasis on the need of greater state and national appropriations to carry on this research. It was pointed out that, in many instances, pest control methods which are practiced today are ahead of research, with the consequence that much so-called educational literature is antiquated.

The convention was called to order on Oct. 27 by F. E. Bohman, general chairman. L. R. Alderman, retiring president, delivered his annual address, followed by secretary William O. Buettner's annual report and the reading of the treasurer's report in the absence of treasurer Albert M. Akers. Prof. J. J. Davis, head of the Department of Entomology, Purdue University, spoke on "Keeping Up With the Changing Pest Control Industry." Prof. William B. Herms, Department of Parasitology and Entomology, University of California, followed with a talk on what he would do if he were a pest control operator, indicating the importance of knowing all there is to know about various pests and keeping up with all new developments.

A round table discussion on "Common Household Insects and Pests" was conducted by Prof. J. J. Davis, Al Forde, Robert Hackley, and Arnold Mallis. A discussion on legislation followed, with William O. Buettner, Max J. Levy and Wayne K. Davis leading the session. Dr. Alvin Cox, Chief of the Division of Chemistry of California, explained the workings of the California law regarding insecticides and other economic poisons. He cited various examples from recent cases in the state.

The meeting was scheduled to continue through Wednesday, Oct. 29, closing with the annual banquet that evening, at which Dr. G. S. MacLeod of the University of California was to act as toastmaster. F. E. Bohman of the Birchard System, Hartford, Conn., acted as chairman of the national committee for the convention, with C. J. Menard, Rose Exterminator Co., San Francisco, heading the San Francisco committee.

Borne Scrymser Move Offices

Borne Scrymser Co., manufacturers of oil specialties for the textile and leather industries, will move their offices to a new two-story building adjoining their plant at 632 Front St., Elizabeth, N. J., about Dec. 1. Among the firm's various oil products is "Stago C.S.," a dispersing agent useful in insecticides, disinfectants, liquid soaps, etc.

FLEA POWDERS

Some of the newer developments in the preparation of flea powders for use against parasites on farm and domestic animals are reported in an article scheduled for our December issue. The place of pyrethrum and rotenone, naphthalene-sulfur and nicotine preparations is commented on and suggestions are included on proper labeling procedure.

Insecticide-Disinfectant Meeting In N.Y. Dec. 1-2

THE 28th annual meeting of the National Association of Insecticide & Disinfectant Manufacturers will be held on December 1 and 2 at the Hotel Roosevelt, New York. A two-day program of papers and discussions on both technical and commercial subjects has been planned by the program committee headed by Robert Joyce of Derris, Inc., New York, assisted by Charles Smith of Socony - Vacuum. Group luncheons will be held each day of the meeting and an informal dinner and floor show will close the sessions on Tuesday evening, Dec. 2. Several speakers will cover the subject of priorities, and the raw material and container situation, including William Bristol of the O.P.M. health products division, H. C. Fuller, Washington representative of the Association, and J. L. Brenn of the Huntington Laboratories, Huntington, Indiana, chairman of the Association Priorities Committee. Mr. Bristol is associated with the Bristol-Myers Co.

An unusual feature of the program will be a symposium on the container situation with five speakers covering the subject of cans, bottles, steel drums and pails, paper products and bags. This will be followed by a question and answer clinic on container problems. Other speakers will discuss livestock sprays, moth proofing, floor waxes, and disinfectants. There will be a report on the fellowship investigations being conducted under the auspices of the Association in the field of bacteria control in common places by the use of disinfectants. Dr. Emil Klarmann of the Lehn & Fink Products Co., Bloomfield, N. J., will report on recent progress in disinfection and also on new developments as Chairman of the Disinfectant Scientific Committee. A. E. Badertscher of McCormick & Co., Baltimore, Chairman of the Insecticide Scientific Committee, will report on recent technical developments and other matters in the household insecticide field, particularly several cooperative research projects being carried on by his committee.

Among the leading speakers listed on the program tentatively are Dr. C. C. McDonnell, in charge, Insecticide Division, Agricultural Marketing Service, Department of Agriculture, who will discuss and explain the recently issued new regulations covering the enforcement of the Insecticide Act of 1910. Paul Bruderer, expert on sanitation and insect control of the New York City Department of Correction, and now temporarily assigned to duty with the O.P.M. in Washington, will outline sanitation methods and materials in the New York prison system. An address on insecticides, disinfectants, floor waxes and allied products from "the consumer's side of the fence" will be made by E. Freedman, director of the bureau of standards of R. H. Macy & Co., New York.

The problem of raw material, container and equipment shortages will represent the keynote of the two-day meeting which will be presided over by William J. Zick of Stanco, Inc., president of the Association, assisted by John N. Curlett of McCormick & Co., first vice-president. Outside of the informal dinner and show, there will be no entertainment features. J. B. Magnus of Magnus, Mabee & Reynard, Inc., assisted by Charles Opitz of John Opitz, Inc. will be in charge of this entertainment. A feature of the meeting will be a group visit, as guests of the Exposition management, probably on Monday evening, Dec. 1, to the Chemical Exposition which will be in session at the Grand Central Palace during the week of Dec. 1 to 6. Announcement has also been made that the annual meeting of the Board of Governors of the Association will be held on the evening of November 30 preceding the convention. Additional details and the complete program will be made public later.

W. J. ZICK
N.A.I.D.M. President

N.A.I.D.M. PRIORITIES COMMITTEE

A COMMITTEE on priorities to act in the interest of manufacturers of insecticides, disinfectants, and allied sanitary chemical products has been appointed by W. J. Zick of Stanco, Inc., president of the National Association of Insecticide & Disinfectant Manufacturers, as follows: Chairman, J. L. Brenn, Huntington Laboratories, Inc., Huntington, Ind.; G. M. Baird, Baird & McGuire, Inc., Holbrook, Mass.; H. M. Clark, Dr. Hess & Clark, Inc., Ashland, O.; John N. Curlett, McCormick & Co., Baltimore, Md.; John A. Marcuse, West Disinfecting Co., New York; R. H. Young, Davies-Young Soap Co., Dayton, O.; and W. J. Zick ex-officio.

Say You Saw It in Soap!

THE average business house receives a great many inquiries for its products or services every year which cannot be attributed to any special source. A vast majority of these probably originate from some form of advertising but, due to the general tendency toward not mentioning the names of publications, cannot be directly traced.

When you write to anyone advertising in this publication, say you saw it in SOAP. The advertiser will appreciate it—and so will we!

The Publishers

Pacific Insecticide Assn. Meets

THE annual meeting of the Pacific Insecticide Institute was held October 14, at the Claremont Hotel, Berkeley, California. Esler Johnson, of John Powell & Co., San Francisco, was elected president for the second consecutive year. H. W. Gibbs, of Sherwin-Williams Co. of California, Oakland, was elected vice-president, and E. R. de Ong, consulting entomologist, San Francisco, was again elected secretary-treasurer. New members of the board of directors are as follows: H. W. Gibbs, Sherwin-Williams Co. of California; W. C. Morrison, Standard Oil Co. of California; San Francisco, V. G. Ryland, Leffingwell Co., Whittier, Cal.; and D. J. Tadick, Shell Oil Co., San Francisco.

This year's meeting was the most successful so far for the Institute, both from the standpoint of representation and from that of problems covered by the speakers. It was estimated that from 70 to 80 per cent of the insecticide business on the West Coast is now being handled by Institute members. By presenting a united front, the Institute has been instrumental in guiding constructive legislation, in securing priority ratings for insecticide raw materials, and in obtaining clarification of regulatory measures pertaining to problems of traffic, packing and materials.

The morning session of the meeting, open to members only, was devoted to business discussions of the Institute, and elections. The afternoon session was an open meeting called to order by chairman W. C. Morrison. Esler Johnson presented his report as president, followed by a series of talks on various industry problems.

Problems of publicity and how to get it for the industry were covered in a talk on "Publicity and Public Relations" by J. G. Motherall, of McCann - Erickson, Inc. Mr. Motherall emphasized that publicity, in order to be of value, must have a real—not a fake—tie-in with the *news*, whether it applies to newspaper publicity or publicity in other types of publications.

"Practical Problems of the Refiner in Manufacturing Spray

ESLER JOHNSON

Oils" were discussed by W. J. Yates, research chemist for Shell Oil Co. The old problem of obtaining unsulfonated residue oil, made difficult due to the use of sulfuric acid in refining, has been eliminated through solvent refining, Mr. Yates said. After explaining the equipment and procedure used in refining spray oil, he pointed out the problems caused by seasonal demand and the effect on manufacturing schedules. Problems of meeting specifications for unsulfonated residue and distilling ranges resulting from inaccuracies of analytical methods were also discussed in detail.

N. N. Gay, research chemist for Standard Oil Co. of Cal., then spoke on "Manufacture of Germicides, Household Insecticides, and Animal Sprays," reviewing briefly the methods of manufacture of the following classes of products: coal tar disinfectants, saponified cresol solutions, pine oil disinfectants, liquid hypochlorite germicides, liquid insecticides, insect powder, animal sprays, and repellents of several types.

"Product Standardization" was covered by L. Mittleman, chief chemist, Tidewater - Associated Oil Co. Present classification of oils by boiling range and unsulfonated residue was explained and A.S.T.M. tests for U. R. and distillation described. Dr. F. G. MacLeod, entomologist of the University of California experiment station, summarized the work which has been done and is being done on "Palatoria Scale" or olive scale. Work with dinitros and oil and rotenone is showing some results in the control of the disease, Dr. MacLeod stated, and good control is being obtained with cyanide.

Dr. Alvin J. Cox, chief of the bureau of chemistry, California Department of Agriculture, then discussed the "Bureau's Viewpoint Regarding Brand Names and 'Directions for Use,'" as based on the law relating to brand names and labeling of economic poisons. A recent amendment to the economic poisons article of the California agricultural code, which became effective September 13, 1941, was cited as follows:

"The registrant of any economic poison sold or delivered to a consumer in this State shall furnish printed directions for use, and dilution if any, upon the label, or shall inclose such printed directions in each container or package thereof, except that such printed directions for use shall not be required when the economic poison, in accordance with established local custom, is to be used in its original form as sold, without dilution or further preparation for use.

"A registrant of economic poisons may cause to be printed upon the label of any sealed or closed container or package of economic poisons which he intends to sell within this State, or upon the label of any opened lot from which sales have been authorized by the director, such limitations of warranty with respect to the use thereof, as the registrant may consider proper; but no such limitations shall exclude or waive the implied warranty that the economic poison corresponds to all claims and description which the registrant has made in respect thereto in print; nor shall any such limitation exclude or waive the implied warranty that such economic poison is reasonably fit for use for any purpose for which it is intended according to any printed statement of the registrant.

"The registrant shall not be liable in respect to any injury or damage suffered solely by reason of the use of said economic poison for a purpose not indicated by the label, or when used contrary to the printed

directions of the registrant or seller, or in respect to the breach of any warranty by the registrant not expressly printed on the label, except as provided in this section."

Where a product is intended for application without dilution, said Dr. Cox, the bureau recommends that the label include the statement "Use Without Dilution." It was also recommended that directions for use of an economic poison should include the following information: the names of the pests, or type of pest for which the product affords control; the dilution, if any, which is recommended; preparation for use; method, rate, time and frequency of application; and warning of hazards which might be encountered.

The annual P. I. I. meeting was concluded with a showing of the color film "Story of Economic Poisons" and a general discussion of problems of the industry.

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Eminent Research Chemist Dies

Charles A. Newhall, 59, eminent consulting and research chemist, formerly with the state of Washington department of health laboratories, and an authority in many fields, including that of sanitation, died recently in San Jose, California.

—— ♦ ——

Doner of Watkins Has Son

Dr. M. H. Doner, entomologist for J. R. Watkins Co., Winona, Minn., recently became the father of a nine-pound boy. Landis Willard Doner is the name of the new arrival.

—— ♦ ——

New Vegetable Wax

From the sugar-cane "mud" that results from the process of milling cane, U. S. Department of Agriculture chemists see the possibility of recovering annually about 7,000,000 pounds of a high melting-point wax which resembles carnauba very closely. The wax occurs on the cane stalks as a thin coating and may be recovered by selective solvent treatment of the mud, formerly thought to be valueless. The wax melts at 174 degrees Fahrenheit, whereas carnauba wax melts at approximately 180 degrees. Preliminary tests indicate that it can be used in place of carnauba for many purposes.

Protests Chemical Rationing

I. H. Luttan, of York Chemical Co., New York, voices a protest against the limiting of materials needed by pest control operators. Text of his letter to the editor of *Soap and Sanitary Chemicals* follows:

Dear Sir:

As a spokesman for the pest control industry, I feel you should acquaint your readers with a condition prevailing throughout the nation which will continue to "squeeze" them in the exercise of their respective callings. I refer specifically to the subject of "Protective Buying" about which Leon Henderson, federal price administrator, has so often warned us.

Our citizenry is probably united in the belief that actual curtailment of consumer goods is the only real answer to our national defense program. But when it comes to limiting materials needed to preserve the health and comfort of the individual, a strong protest arises and well it might. In the interest of public health and safety, the pest control industry uses less chemicals than any other essential agency.

Sodium fluoride is a fine example. Assuming that there are one thousand pest control operators in the country and that each uses one barrel of sodium fluoride per month, the total consumption would equal only two hundred tons valued at approximately $350,000. Is this not a small sum to insure the happiness and continued health and protection for 140,000,000 deserving Americans?

With due respect to Mr. Henderson, it is my belief that our industry should be allotted a free hand to maintain its inventories of necessary chemicals. This will mean safety for the public and greater health for the incumbent draftees. It will help lift the spirits of our citizens and steel them with a morale which is helpful to winning a war. Our firm foresaw this condition and prepared itself before this subject became an issue. Nevertheless, we are still of the opinion that future supplies and chemicals should be made available to every recognized pest control operator as an added "defense" measure. If government agencies can understand our problem and learn to appreciate the service we render, I believe that they will be ready to provide amply for the accommodation of this need.

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Ask Employment Data

Employers who anticipate layoffs in their plants because of shortage of materials or curtailment orders are urged by Federal Security Administrator Paul V. McNutt to report their problem at once to the nearest State employment office. This is the first step, the Administrator said, in obtaining government action to determine the possibility of utilizing the plant and its workers for defense production.

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Chem. Show to Open Dec. 1

The 18th Exposition of Chemical Industries will open December 1 at the Grand Central Palace, New York, continuing thru December 6. New materials and equipment will be shown by more than three hundred exhibitors. The list of industrial chemicals to be shown will include disinfectant and insecticide bases, dispersers, emulsifiers, filter aids, acids, alcohols, alkalies, purifying materials, and numerous others. Displays of all types of chemical products, processing materials, manufacturing ingredients, manufacturing equipment, machinery and supplies, process controls, containers and construction materials will be salient features of the show.

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Study Lead Arsenate Effects

"A Study of the Effect of Lead Arsenate Exposure on Orchardists and Consumers of Sprayed Fruit," is the title of a 181-page publication issued by the U. S. Public Health Service. Based on a three-year study ordered by Congress, it presents a technical discussion of possible injury to the health of persons eating fruit contaminated with lead arsenate spray residues or the inhalation of arsenate-spray, mist or dust by orchardists. Identified as Bulletin No. 267, it may be obtained from the Supt. of Documents, Washington, D. C., for forty cents.

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Cite J. B. Ford Safety Record

J. B. Ford Co., Wyandotte, Mich., won a first place honor in the accident prevention contests conducted by the National Safety Council among chemical manufacturers for the twelve months ending June 30, 1941. At the Council's convention in Chicago last month, company representatives were presented with a bronze plaque testifying to the management's record in preventing accidents.

CLASSIFIED ADVERTISING

Classified Advertising—All classified advertisements will be charged for at the rate of ten cents per word, $2.00 minimum, except those of individuals seeking employment where the rate is five cents per word, $1.00 minimum. Address all replies to Classified Advertisements with Box Number, care of *Soap*, 254 West 31st St., New York.

Positions Wanted

Cleanser Sales—Man with 15 years' background in the sale of assorted bulk cleansers direct to the institutional trade for leading manufacturers, desires new connection where his experience in this field will be of mutual value. For further details reply to Box No. 231, care *Soap & Sanitary Chemicals.*

Soapmaker and Chemist with long experience making all kinds of soaps; glycerine recovery, etc. Can take full charge of plant. Address Box No. 240, care *Soap & Sanitary Chemicals.*

Organic Research Chemist — Twenty-five years' experience—soap production, wetting agents, glycerol, fatty acids, plant control. Excellent references in three states. Now employed. Available Jan. 1, 1942. Correspondence solicited. Can go anywhere. Address Box No. 241, care *Soap & Sanitary Chemicals.*

Soapmaker and Superintendent—Familiar with the manufacture of all kinds of soap. Desires change of position. Address Box No. 242, care *Soap & Sanitary Chemicals.*

Soapmaker and Chemist—practical experience in all kinds of soaps. Would like to connect with progressive concern where up-to-date manufacturing methods would be beneficial. Address Box No. 238, care *Soap & Sanitary Chemicals.*

Soapmaker—30 years of experience in making all types of soaps. Record and references on request. Address Box No. 237, care *Soap & Sanitary Chemicals.*

Analytical Chemist and Soapmaker—specialist in laundry and textile soaps, potash and dry cleaning soaps (paste and liquid) polishes, wetting agents, disinfectants and with many years of experience wishes new connection. Address Box No. 244, care *Soap & Sanitary Chemicals.*

Sales Promoter and Designer of Windsor Waxes, All-Nu Waxes and Products, Ritz household products, will be available after December 3rd. Louis Gould, 1523 Nelson Ave., Bronx, N. Y.

Soap-Maker—Young man with 18 years' experience in manufacture of all types of soap, desires position with reliable firm. Address Box No. 233, care *Soap & Sanitary Chemicals.*

Expert maker of shoe polishes, shoe milk, suede dyes, leather dyes, dressings, cleaners, auto-, furniture-, metal-polishes, seeks position. Specialized in substitutes. Address Box No. 243, care *Soap & Sanitary Chemicals.*

Positions Open

Soap-Maker Wanted—One who can take full charge of plant. Long established firm on Pacific Coast. Send all information first letter. Address Box No. 232, care *Soap & Sanitary Chemicals.*

Chemist—experienced to assume technical charge of Chemical Specialties Division for reputable firm. Duties to include direction of research and superintending plant. Specialties present made include automotive chemical specialties as auto polishes, cleaners, waxes, brake fluids, floor waxes, and polishes. Our organization knows of this vacancy. Address Box No. 236, care *Soap & Sanitary Chemicals.*

Cleanser Manufacturer—Man with some experience in plant work on manufacturing cleansers, detergents, etc., and with chemical training, wanted to do technical service and sales work among dairies, hotels, institutions, food plants, etc. Good future with well-established eastern manufacturer for right man. Give full details in reply, experience, salary, etc. Replies confidential. Box No. 230, care *Soap & Sanitary Chemicals.*

Sales Organizer—Long established manufacturer wants two sales executives of floor treatment products in institutional and industrial field, one executive to direct New York State territory east of Syracuse, other for Wisconsin, between Chicago and Green Bay. Excellent opportunity for top-notch man. Write Box No. 234, care *Soap & Sanitary Chemicals*, giving experience and qualifications. Our men are aware of this advertisement. Replies will be treated in confidence.

Miscellaneous

Will Purchase Immediately—Pneumatic Packaging Machine, used for chips, powder, cleanser; also dry mixers, chip dryers, crutchers, and automatic soap press. Address Box No. 239, care *Soap & Sanitary Chemicals.*

Floor Brushes—We manufacture a very complete line. Catalogue sent upon request. Flour City Brush Company, Minneapolis, Minn., or Pacific Coast Brush Co., Los Angeles, Calif.

Representation in Canada—Firm with modern factory and distributing organization in Canada desires to represent American manufacturers of chemical specialties, sanitary products, toilet preparations and allied products. We can manufacture goods in Canada for firms not equipped to ship to the Canadian market. For further details address Box No. 235, care *Soap & Sanitary Chemicals.*

For Sale: 3000 lb. Perfection Type Crutcher; 5000 lb. Horizontal Jacketed Crutcher; Slabbers; Cutting Tables; Foot Presses; Garrigue Glycerine Evpaorator; 4' x 10' Chilling Roll; Proctor and Schwartz Soap Chip Dryer; Kettles, Filters; Package Machinery Co. N-4 Bar Wrapper; etc. Send for bulletins. Cash Buyers of your Surplus Equipment. Brill Equipment Corp., 183 Varick St., N. Y. City.

Rebuilt Guaranteed Machinery—Two Roll Soap Chilling Unit, motor driven; Proctor Soap Dryer, Crutchers, Plodders, Soap Presses, automatic and foot operated; 12x30 and 16x40 Three Roll Water Cooled Steel Mills; 2, 3 and 4 Roll Stone Mills; Johnson Carton Sealers, Powder Fillers and Mixers; Chippers; Vertical and Horizontal Mixers; Grinders; Boiling Kettles; Cutting Tables; Soap Frames; Filters and Filter Presses, etc. Send for Soap Bulletin No. 402. Stein Equipment Corp., 426 Broome St., New York City.

STATEMENT OF OWNERSHIP

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24, 1912, and March 3, 1933, of Soap & Sanitary Chemicals, published monthly at New York, N. Y., for October 1, 1941.

State of New York, County of New York.

Before me, a Notary Public in and for the State and County aforesaid personally appeared Grant A. Dorland, who, having been duly sworn according to law, deposes and says that he is the Business Manager of Soap & Sanitary Chemicals and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, MacNair-Dorland Company, Inc., 254 W. 31st St., N. Y. C.; Editor, Ira P. MacNair, 254 W. 31st St., N. Y. C.; Managing Editor, Wayne E. Dorland; Business Manager, Grant A. Dorland, 254 W. 31st St., N. Y. C.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustee, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stocks, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the months preceding the date shown above is ——. (This information is required from daily publications only.)

GRANT A. DORLAND,
Business Manager.

Sworn to and subscribed before me this 22nd day of September, 1941.

Samuel Newmark, Notary Public, Nassau County, Nassau County Clerk's No. 1826. Certificate filed in New York County. County Clerk's No. 158. Reg. No. 2-N-87. Commission expires March 30, 1942.

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STOCKS of the 1941 Official Test Insecticide are available for immediate shipment from the office of this Association. The 1941 O.T.I. is required for all testing and grading of fly sprays by the official Peet-Grady Method. The 1941 O.T.I. will remain official until June 1, 1942.

Directions for use of the O.T.I. and the technique of the Peet-Grady Method are given in a booklet, a copy of which is included in each carton of O.T.I.

The O.T.I. is available at $5.00 per dozen bottles, plus shipping costs, to members of this Association. To non-members, there is an additional service charge of $1.00 per dozen bottles. Single bottles are $1.00 each. Check with order is required.

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INDEX TO ADVERTISERS

* For further details see announcement in 1941 SOAP BLUE BOOK

Every effort is made to keep this index free of errors, but no responsibility is assumed for any omission.

Tale Ends

SODIUM FLUORIDE—The O.P.A. is showing more than passing interest in the scarcity of this item, and also the difference between manufacturers' schedules and open market prices. Reported that complaints of consumers are behind an investigation by O.P.A. now being made in pest control and insecticide industries.

* * *

"Face soap" is now being purchased by the U. S. Army for use of its soldiers. But before the days of modern warfare and modern armies, there was one kind of issue soap, used for washing the canteen floor, dishes and soldiers' faces,—yellow bar soap.

* * *

Save your silk stockings by avoiding harsh alkaline soaps in this day when everything is scarce and becoming scarcer. A timely advertising note in pushing the sale of the higher grade chip soaps.

* * *

Pyrethrum suppliers have hopped on the much publicized scarcity of sodium fluoride for roach powders by making the obvious suggestion,—use more pyrethrum!

* * *

If you have recently received a subscription renewal bill for your regular copy of *Soap & Sanitary Chemicals*, we suggest that you send in your check now. This is the time *not* to miss any issues!

* * *

Dozens of letters are coming to us, mostly from small manufacturers, asking where they can buy this or that. We fear that present conditions preclude our being of much help. If you have never bought the item before, you are probably just out of luck if it is scarce. And what isn't? If you have been buying it, all we can suggest is that you place yourself at the mercy of your regular supplier.

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